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The Dental Digest

July 1929

Editor-

GEORGE WOOD CLAPP, D. D. S.

Publisher- **THE DENTISTS' SUPPLY COMPANY of New York**



THE DENTAL DIGEST



VOLUME XXXV

JULY, 1929

NUMBER 7



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THE DENTAL DIGEST

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Published monthly, by THE DENTISTS' SUPPLY COMPANY of New York, 220 West 42nd Street, New York, U. S. A., to whom all communications relative to subscriptions, advertising, etc., should be addressed.

Subscription price, including postage, \$1.00 per year to all parts of the United States, Philippines, Guam, Cuba, Porto Rico, Mexico, and Hawaiian Islands.

To Canada, \$1.40. Great Britain and Continent, \$2.75. Australia, \$3.25. To all other Countries, \$1.75.

Articles intended for publication and correspondence regarding the same should be addressed EDITOR DENTAL DIGEST, Candler Bldg., Times Square, 220 West 42nd Street, New York, N. Y.

The editor and publishers are not responsible for the views of authors expressed in these pages.

Entered as Second Class Matter, at the Post-office at New York City, N. Y., January 29, 1909, under the Act of Congress, March 3, 1879.



THE DENTAL DIGEST

VOLUME XXXV

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NUMBER 7

Stomatological Conditions Encountered in General Practice*

By DOUGLAS B. PARKER, M.D., D.D.S., New York, N. Y.

The subject of this paper would appear to be one to which many hours could easily be devoted without in any way adequately covering the subject, so vast are its ramifications. It is very interesting to note that a large percentage of the medical diseases to which we are accustomed either have some local manifestation in the oral cavity or indirectly affect the mucous membrane of the mouth and tongue. For this reason this particular topic ought to be of great interest to a body composed of both medical and dental men. The day is not far distant when the line of demarcation between these two professions will be almost entirely obliterated by the newer ideas being developed in professional education.

The subject of stomatitis is one that embraces the various inflammations of the oral mucous membrane. It may vary from the simplest form of erythema to the complicated malignancies that are found in the mouth. It is not my intention, in the limited time at my disposal, to go into all the details of many of the sixty or more lesions that are manifested in the oral cavity. It is more fitting that we discuss the more

common and serious lesions that are encountered by the average practitioner.

Most of the mechanical forms of stomatitis are obvious to the average observer and can be quite easily diagnosed and treated after eliminating the cause of the irritation.

Those of chemical origin are very characteristic, in that the various drugs cause the most prominent symptoms in the mouths of those whose teeth are in a very unhygienic condition. A clean, healthy mouth, with teeth in a good state of repair, is not often affected to any marked degree. Most of the chemical forms of stomatitis were seen formerly as the result of occupations in various industries. The different state laws requiring safeguards in industries using lead, phosphorus, arsenic, mercury and radium, have eliminated a large percentage of these diseases which previously were not uncommon. Such drugs as mercury, arsenic, bismuth, bromin, etc., used in medicine by injection or taken by mouth over a long period or in large doses, produce mouth lesions, but these various chemical irritations can be diagnosed by the case history in many instances.

Mercury has been used for many years, as you all know, as one of the standard drugs in the treatment of

* Read at the Annual Meeting of the American Stomatological Association, New York, N. Y., April 29, 1929.

syphilis. Unfortunately this drug is not easily eliminated and its accumulation shows itself at an early stage by salivation, followed by soreness of the teeth, and then by a marked erythema and swelling of the gum tissue. Unless the mercury is stopped, this condition may go on to a breaking down of the mucous membrane along the alveolar ridges and a loosening of the teeth.

Bismuth, in the form of a salicylate, is used more frequently than formerly, and we occasionally see an inflammatory reaction of the gums and buccal mucosa with a characteristic pigmentation of dark color that is followed often by ulceration.

Of the infections by specific organisms that occur in the mouth, we are concerned with syphilis, and while we still see this disease manifested in the mouth in its various stages, it is not so common as it was fifteen or twenty years ago, particularly since the employment of blood tests for diagnosis is in common use. The primary lesion, as it occurs about the mouth, appears more frequently on the lips than in any other place except the genitals. Here the primary lesion or chancre shows itself as a circumscribed nodule with a firm, hard base and an ulcerated center or crater. There is often an accompanying edema of the lip as occurs in many of the other acute infections of this highly vascular tissue.

The mucous patches of the secondary lesions are quite characteristic in appearance. They are fairly symmetrical, superficial ulcerations, comparatively harmless and with comparatively little swelling of the underlying and surrounding tissue. There is a whitish-gray sloughing membrane that is not easily

dislodged, thereby differing somewhat from that seen in diphtheria.

The tertiary lesions of syphilis as seen in the mouth are usually confined to the tissue overlying the bony palate, although they are occasionally found on the tongue in the form of gummatous nodules. The treatment of syphilis as seen in the mouth is that of systemic treatment combined with local symptomatic treatment of the ulcerations with oxidizing mouth-washes and sometimes with topical applications of silver nitrate and mercurochrome.

We have one specific infection in the mouth that I want to speak of in more detail, that is, Vincent's disease or what has formerly been termed Vincent's angina. This disease has undoubtedly increased in this country during the past ten years. References to this disease were very meager in the textbooks of pathology and oral conditions until the more recent editions. I know from my own experience that during the five years prior to the War I do not believe I saw five cases that were recognized as Vincent's infection.

During the War I was privileged to study and treat nearly a thousand such cases with the A.E.F. in France. As my service was with a very well equipped hospital that had very excellent pathological and bacteriological facilities, I was able to study this disease to very good advantage.

Vincent's disease is one that occurs primarily in unclean mouths. It is seldom seen in mouths of those who are extremely conscientious as to their oral hygiene. In France we found that the source of the infection was by means of contaminated eating utensils, cups, and from water that was not chlori-

nated. Some cases occurred undoubtedly by direct contact by kissing, but this was not so prominent a factor during the War as it is today, as many soldiers in line contracted this disease when they had not indulged in such pastimes for long periods, if at all.

There is little question in the minds of many who have made a study of this disease that its great prevalence is due to its spread by soldiers who returned from overseas. The organisms responsible for this infection are the spirillum of Vincent and the fusiform bacillus. These two organisms, growing in symbiosis, constitute the specific agents of the infection.

There are many predisposing causes, chief of which is the neglect of the use of the toothbrush after meals. Irritation from excessive deposits of tartar, overhanging margins of fillings and crowns, irritated gum flaps overlying partially erupted lower third molars, and excessive use of tobacco and spicy foods are other predisposing causes. Fatigue and lowered resistance invite this infection. In my own personal experience I have found that the disease is more prevalent in young adults than in children or the aged. This may be explained by the fact that the young adult in his various activities is more exposed to sources of contamination.

The infection has often a more or less sudden onset characterized by sore and bleeding gums. The lower third molar region is one of the most frequent spots for the infection to start, particularly when there are overlying gum flaps that are traumatized in occlusion. When the infection starts in this area there is generally some involvement of the throat, the patient

complaining of soreness and difficulty in swallowing, and sometimes there is a slight degree of trismus.

The next most frequent area involved is the incisor region, followed by the interproximal tissue between the upper bicuspids and molars. If the mucous membrane is traumatized early in the acute infection, it may involve all of the gingival tissue and sometimes part of the buccal mucous membrane, and occasionally the tongue. The early onset is an acute inflammatory erythema that bleeds easily on irritation and is followed by a grey sloughing membrane along the edge of the gum margins. During this stage there is a foul odor to the breath that is quite characteristic. The general condition of the mouth gives the patient a distaste for food, since chewing and swallowing cause discomfort. Sleep is often disturbed because of the congestion of the mouth and throat when lying in a prone position.

The diagnosis is easily made by the characteristic symptoms, especially the sloughing gingiva that bleeds on the slightest manipulation. The diagnosis can easily be confirmed by taking a smear from the lesion on a slide or cover-glass and staining. The typical spirilla and club-shaped fusiform bacilli can readily be detected under high magnification.

Care should always be observed to see that Vincent's infection is not superimposed on another oral lesion and in that way overlook the original condition. I have seen several early cases of malignancies that were treated as Vincent's infection until the original neoplasm had developed to a stage where it was inoperable.

The treatment of this infection is important. If you have looked up the literature on this subject, you will be amazed and perplexed to see the various and contradictory statements concerning the treatment of this condition. Almost every antiseptic in the pharmacopeia has been recommended for its treatment, including many of the synthetic dyes. The truth is that almost any of the antiseptics have some influence in checking this disease, but there are few that effect a permanent destruction of the microorganism and do not at the same time irritate the mucous membrane.

After experimenting with many of the various drugs that were recommended I have come back to the best known spirocheticide for the treatment of the acute stages. The reason that so many of these cases are benefited by treatment but not cured is the lack of attention to details. The technic that has produced the best results in my hands is as follows:

After the diagnosis has been made, the mouth is sprayed out with either a solution of sodium perborate or H_2O_2 in an atomizer. The oxidized material in the mouth is then washed out with a saline or a soda bicarbonate solution. This leaves the mucous membrane clean and free of excess mucin, so that any medication that is used will be able to exert its maximum influence on the cellular structure invaded by the organisms.

After carefully wiping the mucosa dry, a quarter section of the mouth is isolated by gauze sponges or cotton rolls and the local medication applied. I use a 25% solution of neo-arsphenamin in glycerin applied to the gum margin

and worked in between the teeth with a fine applicator. This medication is allowed to stay for at least five minutes before the saliva is permitted to come in contact with it. The other sections of the mouth are similarly treated. Care should be taken to observe whether or not the tonsils are involved. I make it a point to apply this medication to the tonsils when they are present. This treatment is followed daily for three or four treatments and then I treat the gingival margin of the gums with local applications of a preparation of iodine, camphor and phenol. It is one of the best preparations I have ever found to contract the gingival tissue and reduce inflammations of the oral mucosa.

Between visits the patient is instructed to use a mouth-wash of sodium perborate every two hours and a paste of sodium perborate powder rubbed into the margin of the gums and between the teeth morning and evening. A most important point is to have the patient refrain from smoking during the course of the treatment. This is difficult to accomplish, as many patients will not cooperate fully to this extent, and it prolongs the treatment over a more extended period.

We all see cases that give a history of repeated attacks of Vincent's, and if we examine the mouth carefully, we will generally find a deep retention area somewhere, usually around a third molar, or a deep pyorrhea pocket where a tooth has tipped forward following the loss of an adjacent tooth, or in the deep crypts of a tonsil. These recurrent cases are either exacerbations of a retention area or a reinfection from the source of the original infection. In

the treatment of these recurrent cases great care should be observed in destroying the vitality of the organisms in these retention areas. Personally I use a fine metal applicator with a wisp of cotton on the tip saturated with pure phenol. The phenol is not destructive except to surface epithelium because of its self-limiting action, and the resulting contraction from the scar tissue tends to obliterate the pocket. In handling cases of Vincent's infection it is always advisable to warn patients that they should exercise every precaution to protect those around them by using their own drinking cups, seeing that their knives, forks and dishes are kept separated, and avoiding kissing.

Another infection of the oral mucosa that is of great interest to us all, but one that is not frequently encountered or recognized, is tuberculosis. This manifests itself as a localized area characterized by an extremely reddened granulation surface. There is rarely any sloughing, but a flattened inflammation of a budding character. The surface may seem raw and may bleed at times and may be confused with an early epithelioma, but its progress is slow and it is present over a long period of time. It is an extremely chronic lesion. The diagnosis of lupus or tuberculosis of the mouth is made on the appearance plus a history of other tuberculous lesions. The diagnosis is confirmed by finding the tubercle bacilli in the sputum or by a biopsy. The treatment by local medication is only palliative. Such agents as a combination of iodine, camphor and phenol or the use of ultra violet-ray therapy will keep the lesion under control and apparently help it as long as they are

continued, but if treatment is stopped, the local lesion returns. The surgical removal of the area en masse followed by the actual cautery is apparently the only sure method of eliminating this lesion.

The oral manifestation of many of the systemic infections will disappear following the cessation of the systemic infection. The only treatment necessary for these conditions is symptomatic, usually consisting of irrigations or mouth-washes with some of the oxidizing agents such as peroxid, sodium perborate, permanganate or chlorate of potash.

Some of the apparently simple infections of the oral mucosa which result in characteristic small ulcerations are very obstinate at times to treatment. We are all familiar with the common so-called canker sore. I have had very excellent results by using a saturated solution of salicylic acid in alcohol. One topical application of this solution is usually sufficient to heal the ulcer. Occasionally we encounter an apparently simple ulceration of the buccal mucosa that refuses to heal by the usual methods. I have found several such lesions that had been treated for months without response. They were apparently kept irritated by a high acidity of the mouth. In several such cases the mucous membrane was dried and touched with a 2% mercuriochrome solution, after which it was coated with a solution of compound tincture of benzoin, which acted as a protective covering and allowed healing to start uninterrupted by the acids of the mouth.

This paper on diseases of the oral mucosa would not be complete without

a reference to the malignancies that occur about the mouth. The early recognition of cancer is most important in its subsequent treatment. Any progressive lesion in the mouth should be viewed with suspicion and apprehension. Bloodgood, who has made an extensive study of oral lesions, tells us that malignancies of the mouth are not so prevalent as they were some years ago. This is indeed encouraging and shows what education and the general spread of information on this subject will do. The careful observation of the productive inflammations about the mouth by the physicians and the dentist will tend to recognize these malignancies before extensive granular involvement has taken place.

Cancer or epithelioma, as it occurs in the mouth, is usually the result of chronic irritation by tobacco or mechanical irritation from decayed teeth or ill-fitting dental appliances. The lesion usually occurs on the buccal mucosa or the floor of the mouth or the side of the tongue.

Sarcoma, on the other hand, usually starts along the alveolar ridge and often involves or embraces the teeth and their supporting structures.

The epitheliomata usually start as a little thickening or nodule that breaks down on the surface and enlarges with

a productive inflammation often resembling the surface of a cauliflower. As it enlarges it invades the deep underlying structures rather than starting in them. The development of cancer is progressive and rapid after it has become well established. The clinical picture of a fungating growth with an obnoxious odor and sloughing, with rapid loss of weight and invasion of the lymphatics, is typical of cancer.

Sarcoma usually starts from the underlying structures, and the involvement of the mucous membrane of the mouth is a later stage and is generally an involvement of the circulation.

Let me take this opportunity to remind you that the lesions of the oral mucosa are the common ground of both the physician and the dentist, where they can meet to mutual advantage. It is hoped that in the future the physician will know more of dentistry and the dentist will know more of medicine. The present-day professional school curriculum is now so full that there is only occasion to scratch the surface of many subjects. The real clinical work is learned in hospitals and clinics and in practice. Joint meetings of this kind must of necessity be helpful in promoting a better understanding in both branches of the healing art.

121 East 60th Street.



Cysts of the Jaws*

By F. J. FISCHER, D.D.S., Trenton, N. J.

Oral Surgeon to New Jersey State Hospital

I do not intend to cover the subject of cysts of the jaws fully in this paper, for the time allotted me and the vastness of the subject make it impossible. Much has been written in this field, but still we realize more and more how much there is yet to learn. I have endeavored to dwell on points that will be of interest to you and offer you something upon which there may be an interesting discussion.

The factors that prompted me in writing this paper are: (1) the numerous cystic conditions that confront us, and (2) the possible prevention of such conditions and their actual elimination.

There is no doubt in my mind that, with the advent of the roentgen ray and with the various educational programs causing the public to be examined more frequently, we are apt to witness more of these conditions than previously, especially in institutions and hospitals where we receive patients whose mouths have been sadly neglected. While poor dentistry plays its part in contributing to the aforesaid conditions, nevertheless it is indeed a small one in proportion to the natural circumstances.

Even today it is surprising to note to what great degree exodontia is practiced without the aid of the roentgenograph, and yet it is by that means that cysts of the jaws are most frequently diagnosed.

While there are numerous and diverse classifications of cysts, the one proffered by Hopewell-Smith appears to cover the field fully. While there are slight changes in terms, nevertheless they are clear and in most cases self-explanatory.

Since proper wording has been mentioned, may I state that the term *dental granuloma* is a misnomer. There is no such thing, and, furthermore, a cyst does not, as is generally believed, evolve from such a condition. The so-called granuloma is a rarefying alveolar dental periostitis. It is nature's repair of an abscess by means of granulation tissue. It is not a neoplasm, for no new tissue is formed.

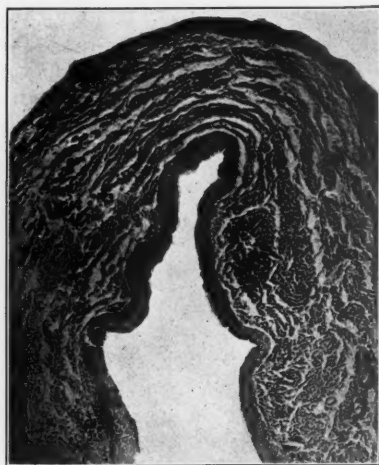
As far back as 1916 Thoma remarked that "Dependorf, in a lengthy article, describes with careful illustrations the formation of cysts from dental granulomata." Thoma, also in 1916, while he agreed with Dependorf that such might be the case, nevertheless was of the opinion that such conditions are rare, for in such a case we would meet with cystic areas more frequently, with so many granulomata in almost everybody's mouth.¹

So you see that at that time, and perhaps before, there appeared the trend to dispose of the theory of the so-called granuloma being the predecessor of a cyst. Such a structure will never form a cyst. It is possible for it to break down and cause a suppuration, but not a cyst formation.

* Read before the Annual Meeting of the American Stomatological Association at New York, N. Y., April 29, 1929.

¹ Thoma, *Oral Abscesses*.

A cyst is composed of a connective-tissue membrane of supporting wall lined by epithelium and forming a



Photomicrograph of a cyst.

cavity, the contents of which may be fluid or semi-fluid, uniform in composition or made up of a mixture of similar or dissimilar substances.²

All cysts of the jaws originate from the epithelial rests in the peridental membrane or, better termed, the alveolo-dental periosteum. These cell-rests appear much closer to the cementum than to the alveolus, and they are not present in all alveolo-dental periosteum. Due to irritation of some sort, chemical, bacterial or otherwise, the center undergoes a process of degeneration and liquefaction, forcing the epithelial cells to the inner wall of the connective tissue.

The cell-rests, in turn, originate from the sheath of Hertwig. I believe that the reason we find the epithelial rests

so close to the cementum is that during the embryonic stage we find Hertwig's sheath adjacent to what is to become the cementum. In all probability there is an abnormality at the time in the formation of this sheath, for I have noticed at times microscopically that the sheath had extended beyond its normal sphere. There is the probability that this abnormality may be the origin of the epithelial rests.

Becker maintains that the immediate cause of radicular cyst formation is hemorrhage into the alveolo-dental periosteum brought about by bacterial, traumatic or chemical action.³

Blum continues further with the theory: "The blood accumulated in the pericemental membrane at the point of the hemorrhage coagulates, and if the coagulum surrounds the blood serum instead of the opposite (this whole process is analogous to cyst formations



Photomicrograph of an epithelial rest.

² Brown, *Oral Diseases and Malformations*.

³ Becker, Erich, *Radicular Cysts*, No. 2 Meusser Collection, 1920.

Differential Diagnosis of Cysts of the Jaws

1.—COMMON CHARACTERISTICS:—Non-inflammatory, benign, painless, slowly growing, tense, fluctuating swellings, possessing epithelial linings, and having except No. B, a tendency to increase in their dimensions and in the direction of least resistance.

2.—SPECIFIC CHARACTERISTICS:—

I.—AGE	II.—ORIGIN	III.—LOCATION	IV.—CAVITY	V.—FLUID	VI.—RADIOGRAPH
Adult	Epithelial "rests" of alveolo-dental periosteum.	Apical regions of "dead" tooth.	Small; unilocular.	Viscid, limpid, cholesteroline crystals.	Well defined outline.
Child	External epithelium of enamel organ and remains of tooth-band.	Between enamel and dental capsule, in gum over erupting tooth.	Very small; unilocular.	Serous, whitish, transparent.	Nil.
A.—Young B.—Young	A.—Stellate reticulum of enamel organ. B.—Whole of several tooth germs.	A.—Around unerupted tooth, e.g., premolar. B.—Molar region.	A.—Large; unilocular. B.—Enormous; unilocular.	A.—Large amount, yellow, slimy, cholesteroline. B.—As above; many denticles.	A.—Tooth in cavity. B.—Many denticles in cavity.
Young Adult	Unatrophied portions of tooth-band.	Region of third mandibular molar.	Large; multilocular.	Thick, caseous.	Tooth may exist in cavity.
Any	Retention cyst through obstruction of duct.	Antrum.	Unilocular; polypoid.	Viscid, yellow.	Nil.
A.—10 to 40 B.—10 to 40	A.—Internal epithelium of enamel organ. B.—Outside enamel organ.	A.—Mandible. B.—Maxilla.	A.—Large; unilocular. B.—Large; unilocular.	A.—Thin, watery, yellow, or (if old) blue, clear, abundant. B.—Yellow, thin, watery, abundant.	A.—Tooth presents defective crown. B.—Tooth presents calcified mass on enamel.
Adult	Glandular epithelium of mucosa.	Antrum.	Large; may fill antrum.	Thick, creamy or caseous, yellow.	Nil.

A.—Dental

B.—Eruption

C.—Follicular Odontome:

(a) Simple
(b) Compound

D.—Epithelial Odontome

E.—Mucous Cyst of Antrum

F.—Odontocle:

(a) Sub-capsular
(b) Extra-capsular

G.—Cystic Adenoma of Antrum

in the brain, bone and other parts of the body), the serum is not absorbed by the nucleus of the cyst fluid, which is increased through the products of degeneration of the connective tissue and blood-vessels enclosed in and strangulated by the proliferating cells."⁴

The value of a differential diagnosis is now realized. To call a cyst merely a cyst would lead us nowhere and sometimes into considerable embarrassment. I therefore offer the differential diagnosis of cysts of the jaws as proposed by Hopewell-Smith in the accompanying chart.

All cysts are considered sterile unless they are secondarily infected, but this does not infer that they do not play a part as a focus of infection. While the inside of the sac may give a negative culture, between the sac wall and the bone there is a state of absorption and inflammation, an area of lowered resistance, from which I have been able to obtain positive cultures. The bone structure immediately surrounding the sac is undoubtedly new bone formation, as proved by Fenton and Prentis,⁵ and not merely calcification, as is often believed.

Vastine states: "It will be noted that proliferation and extension are more pronounced in the end stage when the cyst wall is very thin and the content has reached the peak of its liquefaction. Our laboratory reports on the bacteriology indicate that a slow-growing anaerobe is the activating organism in the latter stage. The organism is found

in the cyst wall; seldom or never in the cyst content."⁶

However, I am unable to agree with him when he states that these cysts usually extend themselves from one side of the mandible to the other, thereby establishing a secondary rarefied area in a part where there is no local cause. It has been my experience that by far the majority of cases present a unilateral involvement.

It is interesting to note that a cyst in the maxillary area will often grow to such a size as to encroach upon and almost occlude the antrum, but usually there is a very thin protective wall. Great care should be taken in removing the cyst in this area, for the wall can be very easily penetrated.

Blum states that in many such cases, following a cystectomy, he has noticed a return of the antral cavity to almost normal size. It is quite rare for such a cyst to penetrate the antrum of its own accord.

It is believed that dental cysts are found about the apical regions of devitalized teeth, the so-called *dead* teeth. Whatever your opinion may be concerning the practice of devitalization, you must admit that often the men most adept in its practice fail. It is not my desire to impede the progress of tooth conservation as far as root-canal therapy is concerned, but the following case causes one to ponder as to whether or not the proper procedure is being followed.

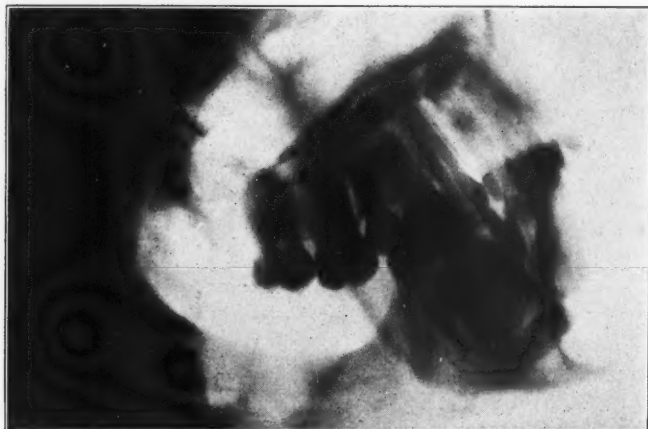
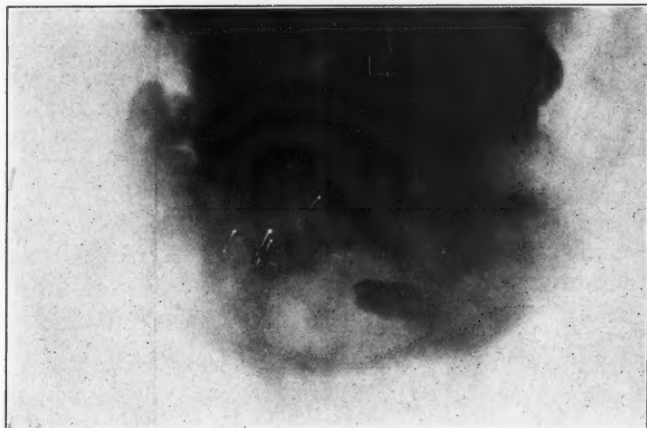
CASE OF FOLLICULAR CYST

A distinguished clinician and author

⁴ Blum, Theodore, *Cysts in the Jaw*, Journal of the American Dental Association, April, 1929.

⁵ Fenton, R. A., *Cysts of the Jaw*, Journal of the American Dental Association, December, 1926.

⁶ Vastine, A. B., *Intra-Oral Cystectomy*, Journal of the American Dental Association, December, 1928.



Two views of a follicular cyst caused by an impacted tooth in the anterior mandibular region.

within the past year cites a case of follicular cyst in A. L., male, aged fifty-two.

The patient had noticed a swelling in the mandible for some time. Two weeks previous the barber had called attention to it and patient went to a dentist, who advised operation.

The outer plate of the mandible, extending from the lower left second molar to the lower right second molar bulged markedly. The skin and lower border were normal. The lower left first bicuspid, right cuspid and right first molar were missing. Practically the entire lower buccal fold was obliterated

by the bulging of the outer plate. There was a parchmentlike crepitation of the protruding plate. Pulp test showed the lower left first bicuspid and cuspid and right second bicuspid to be non-vital. Blood and urine were negative.

For the operation, April 11, 1924, a bilateral mandibular anesthesia was given, and also buccal infiltration. Several cubic centimeters of dark reddish brown fluid were aspirated in the region of the lower left cuspid. An incision was made at the lowest point of the firm attachment of the gingiva from the molar region on the right to the molar region on the left. The outer

One month after the operation all the teeth from the lower left first molar to the lower right second molar were found to be non-vital and were then treated and the roots filled.

While there is still considerable controversy over devitalization among the leaders of the profession, I am unable to understand why root-canal therapy should be practiced, especially in the region of a recent cystectomy.

MULTILOCLAR CYSTS

A multilocular cyst usually occurs in the region of the mandibular third molar. It often extends through the



Left—A retained root. Right—The same case after removal of the root. This shows how easily a mistake may be made in diagnosis when the past history is not known.

plate was removed with the cyst membrane attached to it, revealing a cyst cavity containing a soft, pasty mass of cholesterol crystals and considerable reddish brown fluid. The lower right cuspid, which caused the cyst, was found lying horizontally along the lowest part of the cyst and had to be chiseled from the lower border of the mandible, to which the cyst cavity extended. The wound was packed with iodoform gauze without disturbing the remaining cyst membrane, and the flap was folded in.

entire ramus, involving the coronoid and condyloid processes, and along the body of the mandible for some distance. One can thus readily appreciate the necessity of removing the tooth follicle following the removal of an unerupted tooth.

Of course a multilocular cyst is not at all times simple to remove and for that reason, together with the thought that this condition borders on a malignancy, the actual cautery is sometimes used following its removal. Some may use a chemical, others radium, but it is

needless to say that the latter should be directed by the hands of an expert and an expert alone.

I am unable to continue further without considering the importance of post-operative histopathological study. When we realize that osteitis fibrosis (cystica) simulates a multilocular cyst, and that dentigerous cysts have been found to be that plus a giant-cell tumor, it makes us wonder whether it is not best to study all tumors microscopically. Surely, if this is done, the

siderable damage can be wrought upon the patient where promiscuous curettage is practiced. We know the possible results following this procedure in dry sockets. We are able also to realize the possible damage that can be done in the region of the maxillary sinus. All sacs should be removed in toto if possible. Small curved instruments will in most cases aid in dissecting between the wall of the sac and the bone structure. By promiscuous curettage, if there are any pathogenic organisms present, they can



How a follicular cyst may develop.

clinician is above criticism. I believe, however, that one who is thorough in his pre-operative diagnosis can use his good judgment in deciding which tissues are to receive further study. However, one plays safely who follows such a study as a matter of routine. Sherril states that when blood is found in a cyst it should be considered malignant, unless proved otherwise.

Curettage, as usually applied following extraction, is often overdone. Con-

readily be enmeshed in the cancellated bone structure with a possible spreading of the infection.

I am convinced of the fact that a considerable amount of the infection can be removed from a patient at one operation with little or no reaction if the sacs are dissected in toto, whereas, if done in the other manner, a severe reaction is likely to follow.

All this has a bearing on cysts. If it is true, as some individuals claim, that

the cyst derives its origin from the *granuloma*, then we can readily realize the necessity of its entire removal. Furthermore, to my knowledge there can be no damage done by its proper removal, and a focus of infection is undoubtedly eliminated.

I am certain that you will agree with me that where it is possible a cyst should be removed in its entirety. Not to do so may cause a regeneration of the cyst, except perhaps in the Partsch method, where a portion of the epithelial sac is sutured to the mucoperios-

active infection resulting. There is no doubt in my mind that the area in question should be properly drained and treated daily. I have also realized that retention of a fair amount of gauze in the wound for a reasonable length of time, assuming that it is removed and replaced with fresh gauze at proper intervals, not only will prevent secondary infection but, what is of great importance, will prevent the tissues from sinking in to an unnecessary degree and causing an apparent deformity.



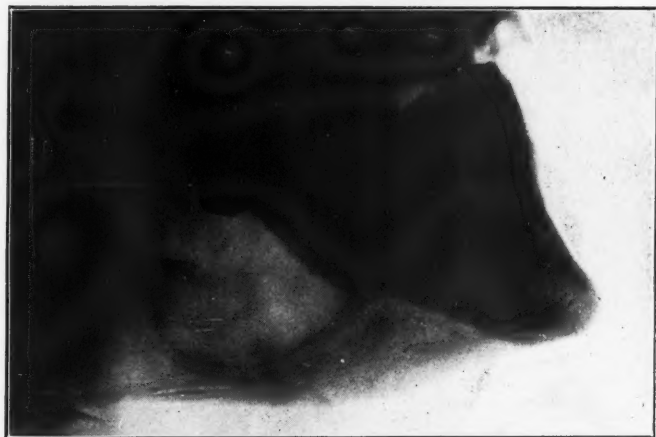
Pre-operative and post-operative cystectomy.

teum. It is believed that the remaining sac assumes the characteristics of the epithelium of the mouth. This method is used where otherwise considerable deformity would ensue. If I recall Blum correctly, in a similar vein he states that a cyst can never recur, but a cyst continues to grow if it is not entirely removed.

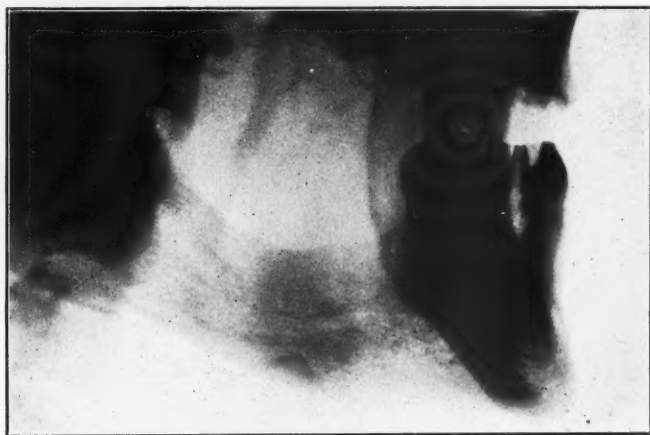
I do not believe that it is good practice in the ordinary operations of cystectomy to close the wound completely by suturing, even if one is positive that all the cystic tissue has been removed, for it is possible and most likely for the blood clot to disintegrate with an

DIET

I am of the opinion that diet plays an important rôle in these conditions. We are cognizant of the fact that the cyst grows toward the area of least resistance, and that in some individuals this causes a greater amount of destruction than in others. Now, I believe that if the bone structure had the proper calcium content, the growth of the cyst would be all the more impeded. Also, it is logical to believe that, following the removal of a large cystic area or, for that matter, where considerable destruction of bone has taken place,



Radicular cyst in a patient 68 years of age.



Same case as above, one year after the operation.

bone repair would be hastened if the patient were subjected to a proper calcium diet.

Following a cystectomy I consult with the patient's physician concerning the diet and general physical care, and the results have been most gratifying.

Leo Winter cites a case of osteomyelitis which showed no favorable response until the patient received cream of calcium, after which bone repair was rapid.

It may be of interest that, in most cases where there has been considerable

bone involvement, I have noticed that the patients have been women and, strange to say, most of them mothers. Is it not feasible, then, to associate the possibility of fetal absorption of calcium with the progress and enlargement of the cyst?

SUMMARY

In conclusion, may I emphasize the following points:

That it is necessary to remove the cyst in toto wherever possible, except where the Partsch method is indicated.

That the oral cavity in general should be freed from any possible future focus such as non-vital teeth in

the immediate area of cystic involvement, whether or not they have had any bearing upon the formation in question.

That the pre-operative diagnosis be as accurate as possible, and that the post-operative diagnosis be absolutely accurate.

That we be as conservative as possible in the removal of healthy structure in order to eradicate successfully the diseased tissue.

That in all operative procedures of any consequence we keep in close communication with the patient's physician, wherever possible, and that the cases should be closely followed until that time when we are certain of a favorable prognosis.



[CAUSE OF LOWERED RESISTANCE]

With lowered resistance to infection, local quarantines break down, such as those about infected pulpless teeth, which now become a liability. Such an individual is in negative calcium balance while using calcium faster than he is assimilating it. This condition constitutes a very common and important factor in the expressions of age, whether in early, middle or old age. Such individuals, for the time being, may be said to be dying, or, as someone has expressed it, people do not die from degenerative diseases, rather they get degenerative diseases because they are dying.

—PRICE.

Clinical and Roentgen-Ray Interpretations of Dental and Oral Lesions*

By ARMIN WALD, D.D.S., New York, N. Y.

Since the advent of the roentgen ray its use as a diagnostic aid in the treatment of dental and oral lesions has been constantly increasing. An oral examination without an x-ray series is no longer considered complete, but as a result of its extended use there has been an inclination by many to depend too much upon it as a sole method of diagnosis. The increasing tendency to be satisfied with the radiographic interpretation can lead to nothing but error and disappointment.

To diagnose properly the condition of the teeth and surrounding tissues, a thorough clinical examination together with the x-ray and history must be had and properly compared. From the routine examination for caries of the teeth to the diagnosis of extensive pathological lesions the clinical and x-ray examinations must be combined, for frequently areas in the crowns and roots that appear to be carious in the x-ray are shown to be non-carious upon clinical examination with fine explorers when the suspected areas have been made accessible. Moreover, apparently residual areas of infection in the alveolus may easily be confused with the results of recent operations.

Incomplete x-rays are also of little value. The picture must include the entire crown, root and as much of the investing tissue as is deemed necessary.

Where any doubt exists, several exposures at various angles should be made of the suspected area, followed by a careful clinical examination. Recently a patient was referred to us for the extraction of a mandibular bicuspid. The x-ray that was submitted did not include sufficient of the investing tissue to show an extensive cyst which was quite apparent upon clinical examination. In another case following an operation for curettement of a small cyst a diagnosis of a residual area of infection was made by the roentgenologist, who made no clinical examination. Both these cases could have been easily recognized had the history been asked before the x-ray was taken. It is a good rule to make the clinical examination and get the history before the x-rays are taken. With the data so procured we are able to instruct our technician as to special features that we may not wish him to emphasize.

X-rays of suspected areas taken at various angles are essential, as small pathological areas may be missed by the interference with the ray of a root or dense bone structure. Dense bone formation in an edentulous socket, which resembles a buried root, also shows its character more clearly. (Fig. 1.)

Cases are referred for extraction in which acute infection is accompanied by trismus, where no intra-oral examination can be made. Here the extra-oral x-ray and history should be care-

* Read before the Annual Meeting of The American Stomatological Association, April 29, 1929, New York, N. Y.

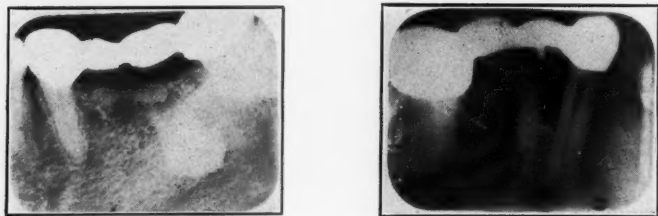


Fig. 1.
Condensing osteitis simulating a retained root.

fully studied. Invariably these cases are referred for extraction under gas. In trying to get the history in a recent case of this kind we were told, "There is no history. She just got hit!" The x-ray revealed a fracture of the mandible in line of the tooth indicated for extraction. Had we operated without a careful examination the fracture would have been entirely forgotten in the anxiety to collect damages. In another case an old and united fracture of the mandible was diagnosed as recent upon no other evidence than the interpretation of an extra-oral x-ray. This fracture had occurred two years before and a perfect union had resulted in the normal period.

The problem of focal infection is one that is ever recurring. We are consulted daily regarding elimination of such foci existing in and around the teeth. These patients usually bring an x-ray series from some laboratory with what is called a "complete diagnosis." These cases are often referred for operation with no examination other than the radiograph, nor has the dental history of the case been inquired into. In spite of these shortcomings, instructions are given for certain operations such as extraction, curettement, etc. In these

"complete diagnoses" the areas at the apices of the teeth are usually described as slightly infected, extensively infected or not infected. We know now that infection is not revealed by the x-ray, and that the non-vital tooth that shows no rarefied area may be the real active focus, whereas the tooth with the extensive area may be dormant. The extent of destruction is no guide to the extent of infection. If the health of the patient is not in question, we may allow devitalized teeth with complete root-canal fillings to remain, but it would defeat our purpose to consider the retention of such teeth simply because they show no pathological areas and may perhaps be considered of strategic value in denture construction. In a recent case an innocent-looking cuspid was retained, while other teeth showing pathological areas were removed. Sufficient time was allowed for the systemic disturbance to clear, but there was no improvement until that cuspid was removed. It proved, upon culture, to be infected. This was in a case of iritis, a condition which is remarkably responsive to the elimination of dental foci.

The differential diagnoses between dental foramina, sinus and cysts are

brought out by the x-ray, but errors in that direction must be carefully guarded against by clinical examination together with x-rays taken at various angles. We oftentimes see such diagnoses in which the maxillary sinus is confused with a large cyst, or the shadow of the anterior palatine foramen, thrown over an incisor apex, is taken for a pathological area. (Fig. 2.)

Infections of the maxillary and accessory sinuses traceable to the maxillary bicuspids and molars are often difficult to diagnose, especially in early stages, for the x-ray discloses little or

ear-pain frequently ascribed to dental causes may actually arise in the ear, and the glandular involvement may or may not be due to the unerupted tooth. In these cases pressure absorption of the impeding tooth is often a source of discomfort or extreme pain. Various tests may be necessary to disclose this condition, which is not always clearly defined in the x-ray. Here thermal tests are of great help, and questioning will often reveal that heat or cold brings on spasms.

The differential diagnosis between facial and trifacial neuralgia and odon-

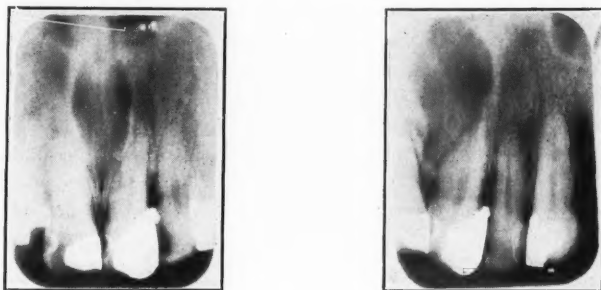


Fig. 2.

Anterior palatine foramina when taken at an angle appear as a large cyst.

no pathological changes, and we are frequently at a loss to know when the infected maxillary sinus is caused by one or more non-vital teeth, or whether the infection is secondary to diseased accessory sinuses. In these cases the aid of the rhinologist is essential in conjunction with the dental examination.

Reflex pain and direct pain caused by impacted and malposed teeth are most common. The apparent cause is disclosed by the x-ray, but at the same time other sources of possible origin must be sought and eliminated. The

talgia is often difficult in early stages. Many teeth are sacrificed in the quest for the origin of the pain, and often perfectly sound teeth are removed upon the insistent plea of the patient. These patients will travel from one dentist to another when the pain becomes acute and recurring. Each dentist in turn is persuaded to eliminate one or more teeth before determining the true condition, of which the sufferer has been previously informed but which he is unwilling to accept as a final verdict.

Early stages of pulpitis and dental

pulp abscess are frequently difficult to diagnose, especially when many filled teeth are present in the area under observation, and it is often not until perioritis sets in that a positive result is obtained. These inflammatory conditions frequently recede before a diagnosis can be made, only to recur again and again, during which time various teeth are under suspicion and the pulps are frequently entered erroneously in an attempt to make a diagnosis or afford relief. Here electrical pulp-testing may be of aid in diagnosis, but is very undependable.

Pulp-stones are another source of irritation that it is frequently difficult to find, and here the x-ray plays an important part. Pictures at various angles may disclose these if carefully examined.

The differential diagnosis between acute dento-alveolar abscess and osteomyelitis is difficult in early stages. The x-ray is of little or no value, and the clinical pictures of both conditions are identical. In later stages bone changes occur which are clearly defined in the

x-ray, and the changes in the clinical aspect become apparent.

Periodontoclasia is one of the conditions frequently ignored in the quest for dental foci. There, too, our laboratory diagnostician easily reports "slight alveolar resorption." This may mean incipient or advanced pathology. Teeth with slight alveolar resorption must be examined most critically. We have discovered pulp infection present where shallow pockets were found, and many of these teeth also proved to have apical infection, which probably was carried through the peridental membrane.

The time allowed will not permit going more thoroughly into this very broad subject. I have only touched upon some of the every-day problems that confront the practitioner in medicine and dentistry. It is important that the medical and dental professions study these problems together. A great advance in the knowledge of dental and oral conditions in their relation to health will be brought about by the exchange of thought your society makes possible.

654 Madison Avenue.



Natural Effects in Full Dentures

By FRANCIS SCOTT WEIR, D.M.D., New York, N. Y.

The attention of those interested in full denture construction has been centered around problems of surgical preparation of the mouth, impressions, balanced occlusion and types of materials for bases, with only a few devoting themselves to producing more natural effects in the finished denture. This phase of the denture problem must receive greater attention in the future, for the laity has been educated to know that something more than a nice alignment of porcelain is possible. They know and see friends who are wearing artificial dentures that escape detection in every-day life. This fact has removed some of the mental hazard that surrounds the period of life when full dentures are necessary and thereby makes less difficult patients for those men who can produce natural and pleasing results.

There are a few men who have given time, thought and energy to the phase of naturalness in denture design, and their reward has been manifest in a large group of pleased and happy individuals who sing their praises whenever they can judiciously.

There are, perhaps, three reasons why more attention is not given to the artistic phase of dentures. The first impression is that the subject is complicated, intricate, requiring long study and experience and, after all, demands an artist to attain any degree of perfection. The second factor is that in full dentures it has been so difficult to meet the mechanical requirements of stability and efficiency that little oppor-

tunity afforded to include anything more. The third reason is an economic one of the time involved for the fee received.

None of the preceding conditions is entirely true at present. The question as applied to natural reproductions is quite simple in application; the impression knowledge possessed by the profession is sufficient to produce fairly stable bases; balanced occlusion is quite accurately established or attainable so that more effort may be applied to expression, facial contours, reproduction of accurate tones in speech and natural arrangements of teeth.

It is true that greater artistic ability will lead to more pleasing results, but the understanding of a few simple phases of the conditions will materially aid in developing greater satisfaction with denture patients. The word *natural* is used here in place of the word *artistic*, because natural results are what one should strive to attain. In addition, it is to nature that one turns to study conditions that yield knowledge of what is being attempted. Many times a natural effect is not always an artistic one, yet it is peculiar and individual to that person. This individuality patients desire to retain, just because it is like them. This expression, form, color and arrangement of the teeth is just the way their family and friends have always known them, and that is the way they wish to remain.

The type of case that lends to a greater accuracy in maintaining natural conditions is the one that presents

before the anterior teeth are lost. In treating such a problem there are many records that may be taken, but for simplicity only a few will be considered.

The first and most important record is a good impression of the labial surfaces of the upper and lower anteriors, taken with the teeth closed in central occlusion, and the impression should extend distally to the cuspids. A good model is made from this impression. A simple record of this character shows the size, form, arrangement and overbite and overjet of the teeth. There is no single record that is so valuable as this one of the twelve anteriors in central occlusion, and it should always be obtained when possible, if only to show the overbite and overjet. In addition to this, the individual teeth may be matched for hue, cavities, lines in the enamel, worn surface areas, and other factors peculiar to the case may be noted and reproduced by grinding and staining with low-fusing porcelain. This all takes only a little time and adds tremendously to the appearance of the finished case.

The taking of this labial impression is accomplished by forming a flat piece of metal wide enough to extend from the gingival line on the upper to the gingival line on the lower. This metal is curved to the arch and extends distally to the cuspids on each side. The tray is perforated and a short handle soldered in the center, or the handle may be made removable.

The correct facial dimension may be maintained by conforming a piece of soft wire to the profile when the teeth are in central occlusion. This wire is placed on a piece of cardboard and the outline cut out to produce a profile

mask. This mask is used to open the bite and establish the position of the superior central incisors.

The preceding records are to be used in those cases presenting prior to the extraction of the teeth. In the class of patients presenting after the teeth are lost either with or without dentures a different procedure must be followed. It is necessary to acquire a series of pleasing natural arrangements to be used as a guide in placing the artificial teeth. This is accomplished by selecting from the practice patients who have a pleasing harmony of tooth form and position for the various types of faces. The impression is taken of the anteriors as described earlier in this article and the face form recorded with each type, or, if the patient will permit, a photograph of the face may be secured and filed with the model of the teeth. The collection of a series of such forms and photographs will give an idea of the arrangement that may be natural in any type of face that may present for dentures. In addition to this, the patient may have a photograph showing the teeth before extraction or he may be able to describe any unusual feature about his natural tooth arrangement.

A photograph of earlier maturity is always valuable as a study guide in expression and facial dimension. This photograph may be used as a guide in determining the approximate opening of the bite for the lower dimension of the face. To accomplish this, measure the photograph from the glabella-nasion to the base of the nose and from the base of nose to the symphysis. These are to be used as the first part of a proportion. Measure on the patient from the glabella-nasion to the base of

the nose. This is a fixed area and does not change. Using this last as the third part of a proportion it is a simple problem to work out and determine the fourth part, which is the lower third dimension of the patient's face. The occlusion rims are then built up until the lower third corresponds to the length determined from the proportion.

These are a few simple things that do not require much time, but that add

greatly to the natural appearance of the dentures. Not one of these is complicated nor do they require the ability of the artist to perform them. The time involved is of small moment and creates a willingness on the part of patients to pay better fees for such a service. Try one of your particular cases and the results will be more than convincing.

30 West 59th Street



[PROPHYLAXIS FOR CHILDREN]

Regular prophylaxis should be commenced when the child is small and should be continued. For a very small child, the use of a piece of clean cloth around the mother's finger is satisfactory. A little later the child can have his own toothbrush, in an appropriate size. It has been the fashion recently, in some quarters, to criticize the toothbrush but admitting some of the faults with which it is charged, the fact remains that many patients are benefited by its use.

—HYDE.

Nutrition

SECOND ARTICLE

This is a continuation of the summary of a series of lectures by Sherman L. Davis, Ph.D., delivered before a special class of the First District Dental Society, New York, during the week of May 6, 1929.

SUGARS, FATS AND VITAMINS

Sugars are divided for the purpose of study into three groups. Those in the first group are the simple sugars, which are not usually found in the articles generally used for food but are found only as a part of cane sugar, beet sugar and milk sugar. This form of sugar is not subject to change by the digestive enzymes in the mouth and stomach.

The second group includes the disaccharids.

In the third group are the starches. When the starches are taken into the mouth, the action of the ptyalin changes them into maltose. In the small intestine a single molecule of maltose is split into two molecules of glucose, which are absorbed into the body.

If sugar is eaten with only moderate rapidity, it can be changed into glucose as it is eaten, but if a large amount is eaten rapidly, it cannot be changed so rapidly but that sugar will show in the blood. In the liver, glucose is changed into glycogen, or liver sugar, and of this the liver is capable of storing about 200 grams, a sufficient quantity for a day of physical work by the individual without eating. This glycogen is the most important material in the body immediately available for the production of energy.

In health, sugar in the blood never rises above 1/10%, and if it gets above

this amount, disorders of the nervous system arise. If an excess of sugar is eaten, it is transformed into glycogen, then to lactic acid, carbon is added, and the product is stored as fat, which is the ultimate form of storage for energy material in the body.

Cane sugar is the most valuable form of sugar that we have, but other forms of sugar are better for the heavy meat-eaters. If a person who has lived upon meat until he has developed an unfavorable intestinal flora will use milk sugar (lactose) instead of cane sugar, or, better still, use lacto-dextrin, it may aid in the development of a more helpful intestinal flora, especially of the bacillus acidophilus.

SUGAR HELPS TO MAKE MUCIN

When a person eats too much sugar, the salivary glands change their structure and the saliva becomes thick andropy. If the sugar is taken away and accessory foods are substituted for it, the character of the saliva will return to normal unless the structure of the glands has been injured.

There are very good reasons for forbidding candy to children suffering from dental caries. The villi of the intestinal tract, the little organs through which food is taken into the blood stream, have two motions, one vibratory and the other a pumping motion. If more than a minimum amount of candy is eaten, the surface of the small intestine becomes coated with an adhesive mucin so that the digested products cannot pass through the wall, the

villi lose both of their motions, and then they begin to atrophy. In this way the absorbing surface of the small intestine may be reduced, and this is a very serious loss to the individual.

For a somewhat similar reason we also forbid chocolate to children suffering from dental caries. While a very small quantity might not do any serious harm, the only safe course with either chocolate or candy is to forbid it entirely. You will recall that if you hold a piece of chocolate-covered candy in the hand until it gets warm, the chocolate forms a very adhesive coating on the skin. It does the same thing in the intestine with the harmful effect which has been described above. This illustration of the warm chocolate on the hands often helps parents to understand why candy should be forbidden to children who are susceptible to dental decay.

THE FUNCTION OF FATS

When fats are eaten, they are not changed in the mouth or stomach but in the small intestine, they are acted upon by the bile salts, are saponified and are split into glycerin and a fatty acid. In this form they will pass through the intestinal wall. As they pass through, the enzymes present in the wall recombine the elements into fat, but not in the same form in which they were eaten. If fat is eaten rapidly, it may be stored in the tissues in the same chemical structure in which it is eaten, but if it is eaten slowly, it is stored in a different form.

Fats have three important functions in the body, the first of which is to supply energy. If a person under 24 years of age is 15 pounds overweight, he has a better chance of a vigorous

adult life than he will have if at that age he is 15 pounds underweight. After the age of 40 the tables are turned and the person who is somewhat underweight has a better chance for a healthy and long life than the person who is overweight.

The second function is to protect the body chemically. The fats combine with phosphoric acid in the cell walls to make a compound of phosphorus and fat. If it were not for this combination, the nutritive particles could not pass through the cell walls. It makes no difference what fat is eaten, or from what source it comes; the digestive processes bring all fats to the same form.

The third function is to increase the power of the body to assimilate other foods.

Let us compare the efficiency of pure olive oil in the body with cod-liver oil. To do this, let us give them to an animal one at a time. When the olive oil gets down into the intestinal tract, the phosphoric acid present acts as a catalyst, and the olive oil will pass through the intestinal wall and be incorporated into the body as fat and will increase the power of the body to absorb other food products. At the conclusion of the experiment with olive oil, give cod-liver oil to the animal in the same way. The phosphoric acid will combine with the cod-liver oil, and it will pass through the wall in the same way but to a much greater extent. If the power of the olive oil to pass through the wall and assist in the storage of other food substances is indicated by the figure 5, the power of the cod-liver oil will be indicated by the figure 18.

ACCESSORY FOOD SUBSTANCES

During recent years there has been established by biological research the existence of a number of accessory food substances which have not been chemically isolated and the natures of which are not exactly known. To this group the term *vitamin* has been given and the members of the group are designated by the letters A, B, C, etc.

VITAMIN A

Vitamin A, which is usually spoken of as the fat soluble vitamin because it is found mostly in animal fats, is essential to the protection of the health of the epithelial lining of the digestive tract, the sinuses, many glands, and the nose and throat, as well as other organs. If an animal is fed upon an insufficient quantity of this vitamin until a purulent discharge comes from the nose, that animal will be subject to successful invasion by infections usually spoken of as mild in character. If the deficiency is sufficiently prolonged, some of the glands may atrophy, so that the animal may be unable to shed tears. We have had forty-five cases of sinusitis in humans during the last year, some of them of the most violent form, and in each we found a deficiency of this vitamin in the food. They were treated by giving them an oil rich in Vitamin A, and some of them completely cleared up within two weeks.

There are in one of the great cities of this country four surgeons who have incomes of \$40,000 a year each, chiefly derived from the removal of diseased ovaries. If you take 100 guinea-pigs who are young and healthy and feed them upon a diet which is well-balanced

in every particular except that it is deficient in Vitamin A, many of them will develop tumors of the ovaries.

The integrity of the tissues of the urinary tract depends upon an abundance of Vitamin A. Large kidney-stones develop in guinea-pigs which are deprived of this vitamin for two and a half months. In the same way the integrity of the epithelial tissues of the digestive tract depends upon Vitamin A. If you make a chemical examination of the epithelium of the lip and also of a finger-nail, you will find that the tissues of the lip contain 1½% of sulphur, while those of the nail contain 4%. If you deprive an animal of Vitamin A, it will develop tumors, and a chemical examination of those tumors will show that they contain 4% of sulphur, just as the finger-nail does. Thus there will be a bone tumor, perhaps located in the soft tissue, and after a while the cells of that tumor may migrate and cause similar tumors elsewhere in the body. Howe is causing epithelioma of the intestinal tract by depriving guinea-pigs of Vitamin A.

My own feeling is that tuberculosis is easily preventable by keeping the nutrition of the body cells up to a high tone, and that means an adequate supply of Vitamin A, of course with other things. Cow butter contains a good deal of Vitamin A when the cows are on green feed, but only a small amount when the cows are on dry feed. If you estimate the efficiency of cow butter in this respect at 18 from June to November, it will be only 1.5 from November to June. It is found also in raw carrots, but if one were to try to get all one's Vitamin A from that source, it would be necessary that 15% of the diet

should be of raw carrots, which of course is out of the question. While we are speaking of butter, it should be distinctly understood that oleomargarine does not contain enough Vitamin A, and we have had cases where illness has resulted from a failure to understand this fact. Lard does not contain Vitamin A, and the epitheliomas which Howe has produced in experimental animals from deficiencies in Vitamin A have resulted from the substitution of lard for butter.

Alfalfa is rich in Vitamin A, but it is not yet in acceptable form for human food.

VITAMIN B

A physician friend had boil on his face. He remarked that he had been having one every six weeks. A little inquiry developed the fact that his diet was deficient in Vitamin B, so I said to him, "On the way home get a head of cabbage and eat all of it raw at one sitting." He did it, and the next day his boil had dried up.

In the absence of a sufficient quantity of Vitamin B in the diet the granules necessary to the formation of the enzymes in the pancreas and some of the other glands cannot liquefy and the digestive enzymes cannot be formed. If the deficiency of Vitamin B is sufficiently great or prolonged, connective tissue may take the place of some of the functioning tissue in parts of these glands, and from that time onward that part of the gland is dead. If the enzymes do not form, the appetite fails.

Vitamin B is very important to nursing mothers, because in its absence lactation fails and a deficiency may reduce the milk supply. When a nursing child

is always having colic or other nutritional disturbances, it is evident that the mother's diet before the birth of the child and probably since the birth of the child has not contained enough Vitamin B. We had a case brought in a while ago in which the baby was taking milk from an apparently healthy mother, but the baby was quite ill. I asked the mother, "Do you use oleomargarine in your house?" to which she replied, "Yes." She was told to replace the oleomargarine with cow's butter. She did, and the child got well. The continuation of digestive disturbances in the child may lead to inflammatory conditions or to a change in the morphology of the intestinal tract.

It is mentioned above that the health of the intestinal tract needs plenty of Vitamin A. It needs plenty of Vitamin B also. It must not be supposed that merely because tissues need one of these vitamins they do not need the others. It is becoming increasingly evident that they need a liberal supply of all of them, but that some of the vitamins have a more or less selective activity upon certain body tissues.

The absence of an adequate quantity of Vitamin B causes a lowering of the alkaline reserve of the body, which is a great defense against mild infections. The great oxidation processes of the body require a liberal amount of Vitamin B, and they also are a great defense against invasion.

In pigeons, sterility of both male and female results from an insufficient quantity of Vitamin B.

Vitamin B is found in the bran and germ of grains, most of which are thrown away in the modern processes of milling. It is also found in the work-

ing parts of vegetables, especially the thin green leaves of lettuce, cabbage, spinach, etc., which leaves are usually thrown away by the housewife, but it is not usually present in any important quantity in the white inside, which is most frequently served upon the table. Orange juice is a fair source of this vitamin. It is found also in the white inner skin of the orange and in the cell partitions.

VITAMIN C

In the absence of Vitamin C the

blood-vessel walls become progressively thinner and you have hemorrhages into the tissues, into the bone marrow and into the vital organs. This is the anti-scurvy vitamin. It is found most abundantly in the working parts of fruits, especially of citrus fruits, but is also in pineapple, raw cabbage, green leaves of lettuce and spinach, and in tomatoes and turnips.

(To be continued)



[STUDY OF PERIODONTIA HAS BEEN NEGLECTED]

It seems logical to assume that the tendency on the part of so many of the profession to be careless in observing the health of the soft tissues may be due to the fact that periodontia, until recent years, has been a sadly neglected subject in dental curriculums. With the growing tendency to emphasis by the dental schools in the study and treatment of periodontal diseases, there should be a decided benefit to the public from more careful consideration of this phase of practice.

—BRYAN.

The Evolution of the Toothbrush*

A CONSIDERATION FROM THE VIEWPOINT OF ITS STRUCTURAL AND FUNCTIONAL FEATURES

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Oral medicine on its preventive side, in our present state of knowledge, points to a pronounced emphasis on prophylaxis. In oral prophylaxis the clinician finds a vast field for investigation. The *toothbrush* presents itself as one of the significant clinical problems. The history of this instrument indicates its important presence in the past. Its relationship to the practice or *art* of oral prophylaxis was quite evident. How about its relation to the *science* of oral prophylaxis? If there be a scientific foundation for the practice of oral prophylaxis, and if we grant its possibility and necessity within the domain of oral medicine, we must seek to develop it according to modern methods. Alfred E. Cohn's reference to the broad development of medicine as a science applies equally to the development of oral medicine along scientific patterns:

"I am here concerned with the development of medical science, not through chance, but by organization. If there is a satisfactory case to be made for the science of medicine, it surely must suggest as a consequence the value of affording to its own votaries the opportunity for investigation."¹

We are all familiar with the function of the toothbrush. We have been made familiar with various means that have been employed to accomplish the same end. Is it not in place to inquire whether one or another instrument performs the assigned function efficiently? And if the function of the toothbrush of the past was not efficient in bringing about the desirable results, did the toothbrush *evolve* in a manner so that it became more and more efficient in the course of its evolution? We note, then, that a study of the evolution of the toothbrush has not only a theoretical interest, as some have become accustomed to think of scientific investigations, but a most practical bearing on the *practice* of oral prophylaxis. We shall, then, endeavor to follow the toothbrush in its changes, structurally and functionally.

Change, whether in the construction of a device or in thought, does not necessarily mean progress or evolution. Let us compare the change in function of the toothbrush with the changes that we believe have taken place in regard to the toothbrush. The changes in the instrument proper, in its structural details, have been slight. In some instances the bristles were made of various degrees of hardness supposedly to clean correspondingly hard or soft enamel surfaces. More recently replaceable and adjustable parts of the brushing surface have been introduced, but

* Abstract of a paper *Is the Bristle Toothbrush a Menace or an Aid in Stomatologic Hygiene?* read before the Preventive Dentistry Section, First District Dental Society, New York, October 12, 1928.

¹ *Medicine and Science*, Alfred E. Cohn, The Journal of Philosophy, July 19, 1928.

we have not deviated from the original idea of years gone by. If we were to inquire what was responsible for the modifications in the toothbrush, we should find that our changed conceptions of the cause of tooth decay and our changed views of hygiene and prophylaxis lie at the root of it. Those interested will find ample illustrations in dental literature to confirm this view. Here I merely wish to indicate that so-called progress in the instrument followed rather than preceded the progress in stomatologic science. In other words, in spite of our failure to realize the needs of a parallel development between science and the instrument, the bristle toothbrush advanced in its own arbitrary way.

The principle we deduce is that *progress in the means or instrument employed in stomatologic prophylaxis is determined by the progress in the concepts or the science of stomatologic prophylaxis*. While we do not notice this parallelism at once, it becomes evident after a lapse of time. In this instance the development of the bristle toothbrush has proceeded in an arbitrary manner, probably based on empirical data, whereas it should have followed a course parallel to the advances in our science. The scientific study of the toothbrush in relation to its application to oral hygiene and oral prophylaxis becomes thus a problem of practical importance.

When our conceptions of tooth prophylaxis were made dependent upon our views of mouth prophylaxis, we delved into newer fields of investigation. We learned of the importance of gum tissue revitalization.² Massage, one of the methods in oral prophylaxis em-

ployed for some time past in Europe, has as a result been added to our procedures.^{3 4}

In Germany, for instance, a number of gum-massaging instruments were introduced in addition to the bristle toothbrush. Since we had not been sufficiently interested in the bristle toothbrush, we were not familiar with the possibilities and limitations of this instrument.^{5 6 7} Naturally, instead of adding a new instrument (gum-massager) for a new function (gum revitalization), we added a new function to the old instrument, the *bristle toothbrush*. There is probably another reason for imposing another function upon the toothbrush. The public, having been educated to consider the brush as a panacea for dental ills, would not be bothered with more instruments, and they might lose confidence even in this one. It was much more expedient to add another function to the instrument. Science had to succumb to popular demand.

If we wish to consider the bristle toothbrush in the light of this progress-function, we must say that, although this instrument has remained structurally the same, it is supposed to have

² Asgis, Alfred J., *Gum and Tooth Revitalization*, American Dental Surgeon, October, 1927.

³ Asgis, Alfred J., *Masso-Dent, a New Instrument in Stomatologic Prophylaxis*, American Dental Surgeon, October, 1928.

⁴ Gebert, Alfred, *Die Wichtigkeit der Massage des Zahnfleisches*, Correspondenz-Blatt für Zahnärzte, July, 1928.

⁵ Misch, Julius, *Zahnärztlich-sozial Hygiene*, Fortschritte der Zahnheilkunde, June, 1928. (See special reference on pages 552-554.)

⁶ Sachs, Hans, *Die Younger-Sachs-Methode in der Hand des Praktikers—Probleme der modernen Parodontosen Therapie*, Zahnärztliche Rundschau, February 3, 1929.

⁷ Lehmann, S., *Parodontose und Zahnbürste*, Zahnärztliche Rundschau, December 23, 1928.

evolved functionally. Today the bristle toothbrush is no longer a tooth-cleaning device; it is also a gum-massager. Some even consider it as a tongue-cleaner and a cleanser of the roof of the mouth. The bifunctional activity of the hair-bristle toothbrush has lured us away from the more important question, namely: does the hair-bristle toothbrush perform its original tooth-cleaning function satisfactorily and efficiently? How efficient is the hair-bristle toothbrush as a tooth cleanser? This is surely our first consideration before we inquire into the efficiency of the toothbrush's added function of gum-massaging.

The regulation toothbrush, as the hair-bristle toothbrush is sometimes called, is supposed to *clean* the teeth, and its main function is to serve as a prophylactic instrument in the prevention of caries. If we were to ask the question, "Why clean teeth at all?" we should probably be told that it is a prophylactic measure against dental decay by removing the mucin plaque. The bristle toothbrush is thus the recognized instrument recommended by the profession for general use in home prophylaxis against the ravages of dental caries. Let us examine some data and see whether the hair-bristle toothbrush actually prevents dental caries.

In his studies of the location of dental caries Hyatt found that the occlusal surfaces of the molars and bicuspid suffer from caries more than all other surfaces combined. Dr. Prime's schematic presentation of the enamel surfaces of the teeth will be helpful. According to him, we have 160 surfaces in 32 teeth, five surfaces to each tooth. If we deduct the occlusal surfaces of the

molars and the bicuspid (20 surfaces), we have 140 surfaces. According to Hyatt's reports, the 20 occlusal surfaces of molars and bicuspid have almost twice the number of carious cavities that the remaining 140 surfaces have combined. Or, to put it in other words, the occlusal surfaces of the first permanent molar, the most important tooth to be considered in children's dentistry, have more carious cavities than the other four surfaces added together and multiplied by two. We may then consider that occlusal caries presents over 65% of the total caries on all enamel surfaces. What, then, is the efficiency of the bristle toothbrush in regard to the prevention of occlusal caries?

We have now available statistical and scientifically correct clinical data to show that the bristle toothbrush is not an efficient means of coping with this problem. Professor Bodecker of Columbia has given us figures in which he shows that the finest toothbrush bristle will not penetrate occlusal fissures.⁸

Hyatt's advocacy of surgical or operative interference in the presence of fissures in the enamel of occlusal surfaces is based on the principle that the bacteria in these imperfections will not be dislodged by brushing.⁹ This surgical procedure for the prevention of dental disease before it is actually present, designated as *prophylactic odontotomy*, is now accepted as a preventive

⁸ Bodecker, C. F., *Bacteria in Relation to Enamel Fissures*, Dental Items of Interest, November, 1926.

⁹ Hyatt, T. P., *History and Development of Prophylactic Odontotomy*, Indian Dental Review, July-September, 1927.

measure¹⁰ by the profession and public health authorities. The Massachusetts Department of Public Health, in one of its posters, mentions the fact that "a fissure is no larger than one bristle of a toothbrush." Brushing cannot keep it clean. From these statistical data we can estimate, then, the functional efficiency of the bristle toothbrush to be about 35%.

Let us now examine the correctness of the assumption of the 35% efficiency of the bristle toothbrush to prevent decay in the remaining 140 surfaces of the enamel. On this point no scientifically accurate data have so far been presented. On general principles some deductions have been made. Hyatt's view on this question is that approximately 80% to 90% of approximal caries in the molar and bicuspid regions has its origin in occlusal pits or fissures. He concludes that prevention of occlusal decay will very largely reduce the number of approximal carious cavities. No suggestion is made to employ brushing as a method of prevention in this instance. The observation, although not conclusive, is at least suggestive. If we accept Hyatt's view that there are no regions of immunity and susceptibility to decay as such, and that decay is mainly a matter of lodgment of bacteria in certain anatomic formations or oral formations of the enamel which enable the bacteria to lodge undisturbed and produce acid, thus starting the process known as decay, then we may at least assume that there are surfaces other than occlusal fissures where decay occurs. Clinically we know

that to be the case. If the bristle toothbrush is effective in areas other than the occlusal surfaces, then approximal caries should be prevented by brushing and not necessarily by surgical treatment of occlusal surfaces. From implications in Hyatt's careful studies we may deduce that the 35% efficiency of the bristle toothbrush can safely be reduced to 1/3 (128 surfaces divided by 40 interproximal surfaces). The efficiency of the bristle toothbrush then totals about 24%.¹¹

I am very much impressed with the recommendations made by Hyatt that dental statistics be considered "practical." It would have helped us much in our discussion proper had we been in a position to know the ratio of caries in different parts of the same tooth or of certain areas in mouths with given diseases or health conditions, subject to definite clinical description. Some day every clinician may be able to secure such data from a bureau established by the American Dental Association similar to the facilities provided by the Metropolitan Life Insurance Company.

In the meantime, I shall refer to a statement made by G. Walter Dittmar of Chicago, who is also interested in dental statistics, but from a different angle. He maintains that more than 90% of the exposed surfaces of the human teeth of healthy persons, in fact all of the surfaces except a portion of the gingival third and a little of the interproximal surfaces, provided there are no pits nor fissures nor other faults, automatically cleanse themselves of

¹⁰ Hyatt, T. P., *Preventive Dentistry*, Report of the Proceedings of the Sixth Australian Dental Congress, Melbourne, Victoria, August, 1927.

¹¹ Hyatt, T. P., *How Can the Orthodontist Help Preventive Dentistry*, Oral Topics, February-March, 1928.

disease-producing bacteria. His observation regarding unhealthy, undernourished, anemic and otherwise diseased children, especially when they suffer from malocclusion, leads him to believe that they will not be helped much by mechanical means in the removal of deposits, secretions and stains.¹²

The following comment on the efficiency of the bristle toothbrush as a cleanser and preventer of caries made by the *Medical Press and Circular* is illustrative:

"As a cleanser and preventer of caries the brush is of little use, save in removing the food from pits on the grinding surfaces of molars. Even when the teeth are well spaced, and they very seldom are in this country, the brush is almost useless for cleansing the adjacent surfaces of enamel, and it is just here that caries as well as pyorrhea is apt to begin. For polishing the enamel a piece of lint or linen is preferable to the brush, in that, unlike the brush, it does not tend to damage the enamel, causing erosion at the gum edge."¹³

That the vigorous daily use of the toothbrush is responsible for the cutting and scratching of the enamel is well known. There are a number of clinical records available to show that irreparable damage has been done to the enamel by the hair-bristle toothbrush. The claim that proper methods used in brushing will offset this evil is hardly tenable. Those conscientious pa-

tients who made a strenuous effort in vigorously brushing the enamel are most likely to be the sufferers.

Holborn points to the "ultimate effects" of toothbrushing and states that from his clinical observation he has seen no one who has practiced tooth-brushing *vigorously* daily for twenty years, or even ten, whose teeth have not lost some part of their structures thereby. He has seen patients of middle age whose teeth were cut right through at the neck by tooth-brushing so that "they snapped off."¹⁴ Stillman, Simonton, Sorrin and Miller and other clinicians have from time to time reported similar observations.

The history of the tooth-cleansing instruments of ancient times and the history of the more modern device, the *hair-bristle* toothbrush, furnish us with sufficient information to trace the *evolution* of the *bristle toothbrush* since its adoption for universal application. Our aim in following its evolutionary path is to disclose a principle underlying the development of this instrument.

A glance at the number and kind of bristle toothbrushes now in general use will disclose the fact that changes in this instrument have taken place. The very fact that today we have about 500 kinds of bristle toothbrushes on the market is in itself an indication of some kind of progress. We must grant that in 1806 or thereabouts we did not have 500 types of this instrument. Surely each *new* toothbrush, as it came on the market after that date (1806), must have had, theoretically at least, (from the manufacturer's viewpoint) a

¹² Dittmar, Walter H., *The Dental Hygienist Question in Illinois*, Oral Hygiene, August, 1927.

¹³ *The Toothbrush*, Dental Surgeon, London, May 21, 1927.

¹⁴ Holborn, F. M., *Pyorrhea*, Gateway to Health, by Charles E. Hecht, 1921, page 250.

distinctive feature to recommend itself to the competitive market. Such distinctive features of the new brushes must have been progressive in character as compared with those features of the instrument already on the market at the time. Business efficiency alone would demand it. And if we are to follow this reasoning to its logical conclusion, we should say that the present bristle toothbrush may be considered as the combined product of 500 distinctive features. What are these several hundred distinctive features of the synthetic bristle toothbrush of today?

According to Kauffman's analysis,¹⁵ the bristle toothbrush presents 13 features of structural detail. An analysis of his chart (First Report), containing a study of 37 kinds of brushes, will show that the variations in these instruments are not very marked. It is interesting to observe that the most recent types of bristle toothbrushes, containing 28 new brushes, do not present features not included in the original classification.¹⁶ A scientific study of this instrument would indicate that duplication must have taken place somewhere in the past 150 years during this arbitrary planning of the construction of toothbrushes.

Taking these structural details or features as our guide, let us inquire as to what has actually taken place in the course of the evolution of this device. This instrument has *structural* as well as *functional* characteristics. While strictly speaking, it is difficult to separate the structural from the functional

features, it is possible to indicate those parts of the instrument designed to perform a specific and positive function when in use, irrespective of whether or not these functions are actually performed.

Let us consider those features of direct interest in our analysis. The bristle toothbrush presents two structural details, the *handle* and the *brushing surface*. The handle has not been materially changed; its length does not vary to any measurable degree in different types of brushes. The materials used for handles are bone (recommended as best), celluloid, wood, rubber, metal. The shape of the handle does not represent any marked degree of variation. It is straight, concave, slightly concave, or slightly convex. The flexibility, semi-flexibility and non-flexibility are only three features representing the flexibility of the handle. Flexibility of the handle is a feature that plays a part in the functional efficiency of the device. If the proper materials are used, this efficiency is insured. In other words, the handle does not represent an important characteristic feature in an account of the evolution and the progress of the bristle toothbrush. The handle is merely an adjunct to the functional ability of the device.

When we look for the function of this instrument, we shall find it in the *brushing surface*, or what is generally spoken of as the *cleaning surface*. Have any changes taken place in the brushing surface? The mere examination or study of the Kauffmann charts will not disclose the information we are seeking. We shall note here, too, variations of slight significance. The arrangement of tufts and the length

¹⁵ Kauffmann, Joseph H., *A Study of the Toothbrush*, The Dental Cosmos, March, 1924.

¹⁶ Kauffmann, Joseph H., *A Study of the Toothbrush* (II), Dental Cosmos, February, 1929.

of bristles do not vary to any appreciable extent. Of greater importance to us is the *size of the brushing plane*, that is, the length and width of the brushing surface. The bristles are arranged in such manner that we may consider that they form a *plane*. The object of this plane arrangement of tufts is to utilize the surface friction of this plane when placed against the enamel surface to produce a polish or cleaning effect. It is this frictional ability of the end-points of bristles, *the function of the toothbrush*, which makes hair bristles, in the opinion of some, indispensable to this instrument. The principle involved may be stated to be one of surface-to-surface relationship. To be efficient, the brushing surface of the toothbrush must produce friction on the enamel surface.

Has the principle of surface-to-surface relationship of the present-day bristle toothbrush been altered as compared with former instruments? No. Many still believe that teeth can be cleansed only with a thousand bristle ends by friction. *This function of the brush has remained unchanged*, and the principle has not changed. Shall we say, then, that the bristle toothbrush has evolved?

It has been repeatedly stated by experienced workers in the field that simplicity in procedure is likely to bring better results in stomatologic hygiene efforts than complexity in methods, instruments, and added time involvement, for the public is not interested in dental calisthenics. Suppose we inquire as to what good reason there is for not transferring the enamel-cleaning function to the gum-massager (since *gum-massaging* has been transferred to the

tooth-cleaner), if we grant the plausibility of the idea of transference. Let us take, for example, the gum-massager and the enamel polisher composed of a handle and a polishing surface (cleaning plane or brushing plane) formed by rubber, cotton or compressed cotton, etc. We have then before us a modern functional device which meets the *functional and structural* requirements of a bifunctional toothbrush, and which at the same time has only one change in its structural detail—the *brushing surface* or plane is formed by a material other than *hair bristle*.

It may therefore be said that the instrument composed of new materials is not, in the strict sense of the term, a substitute instrument, a displacing instrument; it is virtually the same instrument, performing the same function for which the bristle instrument was originally designed, with the addition of being also a gum-massager.

No one would question the advantages of the electric dental engine over the foot engine, even though the *materials* used in the former were different. Whether or not the dental engine actually performs the functions it is designed to perform determines its efficiency and value.

If we, then, ask the question, has the bristle toothbrush evolved, we can readily say, "No." The reason must be sought for, not in the instrument but in stomatologic science. It seems to me that we have been fitting our conceptions to the instrument instead of adopting and devising instruments to meet the needs of our science. Similarly we were forced, clinically at least, to fit our principles and methods in prophylactic procedure to the instru-

ment which some of us set out to retain at all cost.

And the strange part of it all is why of all things *hair* bristles are held in such high esteem by their protagonists when cotton may perform *all* the supposed functions of the hair-bristle brush, and more. Has cotton or sterile gauze not earned for itself a high place in our professional world, considering their combined humanitarian services in the World War, or even in time of peace? I make no plea for these or any other materials, for they will find their due place in the course of time. I simply wish to indicate that details

rather than principles have been unduly stressed.

My concern is primarily to bring forth the fact that from my clinical experience, as well as that of others, and in correlation with other necessary data, the cotton toothbrush, the rubber toothbrush, etc., or more correctly, the "bristle-less" toothbrush accomplishes the enamel-cleaning function as efficiently as does the hair-bristle toothbrush. As a gum-massager it has no equal. The hair-bristle brush cannot be considered at all as a gum-massager.

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[TREATMENT OF PERIODONTOCLASIA]

There is no one universal panacea for periodontoclasia. Successful treatment depends on a discovery of the causes and their elimination, together with a restoration of tissue and organ function. Drugs and elaborate apparatus have little place in rational therapy. The essentials are knowledge of the causes, skill in instrumentation, enthusiasm in getting patients trained and cooperation in eliminating systemic defects.

—LEONARD,

Prevention and Its Significance to the Dentist

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I shall limit this discussion wherever possible to statements of existing clinical facts which coincide with the opportunities presented to the dental clinician or stomatologist in his daily observation.

Back of any attempt is a motive, that is, a desire to stimulate an interest or awaken the recollection of those of a limited breadth of view who, rather than lacking opportunity to apply clinical knowledge, lack the fundamental training necessary for the proper appreciation of cause and effect.

Actual experience cannot be replaced by words. If such a plan could be adopted, principles exemplified in clinical practices would be simplified and material could be systematically arranged in text and absorbed at leisure. Well-directed, intelligent effort develops perfection, which should be our ultimate aim.

The importance of good health for the successful reconstructive or restorative practice has been well impressed. Questions arise daily concerning the relative importance of disease influence upon prosthetic dentistry. A great many men believe that much that has been said is hypothetical. It remains a difficult matter, therefore, to develop uniformity of thought or to succeed in establishing standards that will satisfy all concerned.

However necessary may be technical skill, it is the synchronized effort with clinical deduction that raises dentistry to an art far removed from mere me-

chanics. With this thought in mind I shall endeavor to outline an effective remedy for failures that occur in spite of technical efficiency.

In spite of the cause of a disease or the nomenclature, there is fundamentally back of any disease a physiological and chemical change announcing a disturbed function, which if not corrected becomes organic or pathologic. Symptomatology carries disease out into the open and makes the value of symptoms dependent upon the individual's knowledge of physiology, chemistry, clinical experience, etc. Success will depend upon the ability to select from the examination and from the patient's history those symptoms which are expressive of the underlying disease.

As an example, the "apple" or aromatic odor of the breath in incomplete fat combustion or disturbed sugar metabolism is due to the appearance of so-called ketone bodies (b-oxybutyric acid, diacetic acid and acetone) in the blood. As the chemical changes advance, symptoms present themselves that are indicative of acidosis. While these changes are taking place, there is an interference with the interchange of oxygen and carbon dioxide which subsequently affects the respiratory center in the brain, producing coma.

Learn to master the art of eliciting a history—not a voluminous report of the irrelevant or immaterial, but a complete summary, right to the point. With this the first consideration is the recognition of visible or objective signs. For

convenience sake and to facilitate the practice, adopt a style similar to the following:

(1) *General appearance.* Age, sex, height, weight and gait. Robust or emaciated. Plethoric or anemic. Deformation and characteristics of speech. Hysterical or stoical. Any outstanding abnormal characteristics.

(2) *Head.* Shape, size, mobility and position, exostoses, scalp, mobility and thickness, presence of sebaceous cyst, etc. Quantity and quality of hair. Presence or absence of seborrhoea. Physiognomy. Characteristics of the jaw. Ascertain the condition of the regional lymphatics, testing all motion and observing joint action (cervical and occipital), and salivary glands.

(3) *Face.* Note any deviation from normal in color, facial lines, or swelling, visibility of capillaries, characteristics of temporal artery. Presence of erythemas, acne, warts, moles or epithelioma.

(4) *Neck.* Determine visibility or palpability of the thyroid gland, characteristics of suprasternal notch. Development or prominence of auxiliary muscles of respiration, condition of supraclavicular lymphatic glands.

(5) *Eyes.* Size, position, shape and color. Character of the lashes. Observe the tear duct. Presence of strabismus, granulation or tic of lids. Appearance of the conjunctiva, dry or moist. Note any corner opacities. Reaction of the pupil to light and accommodation, and the Argyll-Robertson pupil.

(6) *Ears.* Size and shape. Presence or absence of fissures, cracks or excoriations. Functional capacity. Exert

traction on the tragus. Palpate the mastoid.

(7) *Nose.* Size and shape. Presence or absence of fissures, cracks or excoriations. Respiratory efforts, free or with difficulty. Note signs of rhinitis, secretion and odor.

(8) *Mouth.* Size and shape. Appearance and characteristics of lips. Alteration of normal lines. Presence of fissures, cracks or excoriations.

(9) *Articulation.* Enunciation and pronunciation. Note any impairment.

(10) *Interior of mouth.* Gross characteristics of the teeth: size, number, position, color, shape and slope. Observe gingival attachment, interdental spaces, cusps and margins. General sanitation and presence of odors. Observe the functional activity of the tissues of the mouth (hyperemic or anemic, dry or moist) and the character of the saliva (increased or diminished, viscid, tenacious, etc.). Inspect Stensen's duct.

(11) *Buccal mucosa and gingiva.* Record any congestion or ulceration. Note any hypertrophy, atrophy, deposits, exudate or recession of the gum. Presence or absence of decomposed food, fermentation or pus. Any obvious signs of retained infection. Presence or absence of mucous patches or leukoplakia.

(12) *Mobility.* Size, shape, position and general characteristics of the tongue.

(13) *Dentures and restorations.* Determine the condition regarding occlusion, irritation and contamination, pulp activity, marginal decay, speech usefulness, comfort and appearance.

(14) *History.* Past and present medical history. Family history and oc-

cupational exposures. Characteristics of pain, location, relation to time of day, to exertion (physical and mental), to taking of food, to kidney and bowel activity, to changes in body posture, to motion, to atmospheric changes and light. Type of pain—sharp, cutting, dull and boring, jumping or throbbing, continuous or intermittent, discomfort or annoyance, localized or referred.

(15) *Physical examination of the teeth.* Determine the presence or absence of any variation from normal occlusal sequence, presence or absence of traumatic occlusion, presence or absence of drifting or twisting of teeth, presence or absence of third molar and condition of the gum in its vicinity, presence or absence of any fistula, presence or absence of caries with special attention to each lesion. Test masseter reflex.

(16) *Pharynx.* Condition of membrane (hypertrophied or congested). Presence of mucous or false membrane. Tonsils—enlarged or embedded. Any signs indicative of disease.

(17) *Roentgenography.* This will reveal many latent manifestations, detect decay beneath old fillings which has been overlooked because of difficulty in locating minor cavities situated in out-of-the-way places.

Preferably, if the patient has a medical adviser, he should provide an accurate record of clinical reports with a diagnosis supported by rational conclusions from investigations. The greater the number of probable causes, the less likely or the weaker the inference of any specific cause. An effect is due to prior cause, and the greater the number of explanations for a given condition, the more difficult will it be-

come to prove one of them. Therefore should you not be accorded the courtesy of cooperation, there is nothing to prevent you from insisting upon the management of the case from the clinical viewpoint. Becoming familiar with the requisites and finding them lacking, you are certainly not speculating by asking for a consultation or arranging for any laboratory studies necessary.

The principles above defined will vary according to clinical experience, cases under observation, and the dentist's ability to simplify them and yet be thorough. The dentist should prepare for permanent use a syllabic plan of systematic interrogation.

Education and the evolution of the sciences have developed a greater clinical interest. Time will bring about bigger things in both medicine and dentistry, and the day is not far distant when the dentist will be regarded as an indispensable factor in preventive measures.

The physician ascribes a neuritis, arthritis, neuralgia or whatnot to a focus of infection within the mouth. He requests dental interference. The dentist removes the alleged offender and gives the patient hope of a successful outcome. In the event of failure the dentist at least shares the blame in the mind of the patient.

Dentistry must be developed more generally from the clinical aspect if it is to share in the honor that attends the progress of health conservation. Without the proper diagnosis mechanical skill becomes a failure. Restorative procedures in their most refined sense without clinical requisites are insufficient.

The ravages of disease can be con-

trolled more successfully when the gap now existing between medicine and dentistry is narrowed. There should be a greater cohesiveness of the organism as a whole in view rather than the present standard. Progress in this direction advances apace. The mere removal of defects should not be the standard. Prevention of lesions, oral or other, is paramount. The dentist's position is intermediate in the eyes of the patient, but it is within his province to suggest, as he is not limited to mechanical efforts.

Countless failures observed yearly, clinically and mechanically, are due perhaps to the fear of offending the physician, to the position which he now occupies, and to inefficient clinical reports. If he observes and maintains contact with the family physician, he will eventually evolve clinical sense, and there will come as a reward a clinical confidence which will activate further effort. His storehouse of knowledge can be drawn upon for the benefit of countless patients.

A review of clinical records reveals the fact that abscessed teeth have been responsible for systemic disturbance—not only abscessed teeth, but dental cysts and impacted or concealed molars that are generally unsuspected. No doubt many teeth are removed or repaired without due study of the need of the situation. Many teeth are unsuspected or unrecognized sources of pollution until great damage has occurred. All are agreed that in the majority of instances the cause remains the same, that is, failure of a comprehensive study.

Rather than the term *abscessed teeth* I prefer the more specific one of alveolar abscess or abscess of the alveolar

space, abscess of the apical space. Such a comprehension stimulates greater concern and anatomically is correct.

The abscess is extraneous to the tooth in spite of the attachment which is prompted by inflammatory, suppurative or reparative processes. The immediate cause is within the space, and the predisposing cause, in the majority of instances, is systemic. The remote cause is within the tooth. When the dentist regards the space as a potential source of trouble and the tooth as an exciting cause, failures will be reduced. This statement may seem contrary to teaching or reason, but it conveys an impression which evidently in the past has not been well applied.

It would seem that in dental clinics attached to hospitals clinical reports are of secondary consideration and generally of no value because a thorough study has been omitted. Diagnosis is becoming more a requisite every day. The necessity of the dental intern is becoming more and more apparent. Legislation of the proper sort is necessary for control of public and individual health, and there is a growing tendency to accord clinical dentistry more recognition and latitude, particularly in State-supported institutions and State-supported clinics.

Among the supposed contributing causes of oral pathology are obscure incipient or latent diseases peculiar to the gastro-intestinal tract, promoting obtrusive functional disorders; faulty habits, such as poor mastication, errors of diet, constipation, excessive use of tobacco and alcohol, lack of exercise, occupational tendencies or influences, worry, grief or emotion.

A functional myocarditis may be due

to nicotine poisoning, excessive use of alcoholic beverages, injudicious dieting and the use of weight-reducing drugs (combinations of thyroid extract). Nicotine paralyzes or depresses the vagus endings in the heart muscle and thus encourages a tachycardia which eventually weakens the muscle. A functional gastro-intestinal disturbance promotes a pericolitis and interferes with the action of the gastro-intestinal juices. Reflex nervous symptoms occur, and a leukocyte count may reveal the presence of absorption or may be an expression of the individual's resistance to a low-grade infection in the infections or affections which in the beginning are in the appendix, gall-bladder, stomach, duodenum, colon or rectum. Functional disturbances, irrespective of cause, lessen resistance and, if not corrected, predispose to organic and systemic changes.

The chemistry of the body is of vast importance clinically. In health there is an alkaline reserve, and the ratio is constant. Any decrease is a forerunner of an acidosis. The non-volatile acids are continuously neutralized and the alkaline bases that are left are converted into the bicarbonates. When the kidneys fail to eliminate properly and promptly, ketone bodies appear in the blood and urine. The question of the alkaline reserve should be given careful consideration in all and every case of unwarranted dental failure. Patients in middle life are very likely subjects.

A consideration of the blood chemistry, that is, urea and sugar estimation, will provide much information. A Wassermann reaction in every case suspected, denied or affirmed clinically, is of great value. A gross and microscopic

analysis of the urine aids considerably and assures the prognosis.

Salivary chemistry is an important factor in the prognosis of any pathology affecting the oral cavity. Alteration shows a disturbance in one or more of the functions of saliva, which are protective in emulsifying food, thus facilitating deglutition; in aiding starch digestion and the preparation of food for further digestion; as an inhibitory influence upon germs and decay; as an activator of the enamel cells and in facilitating speech. Much marginal decay attributed to improper preparation for retention is due to the condition of the saliva. Irritation of the gum from crowns carried beyond a point of safety is encouraged by the reaction of the saliva. Nicotine and the volatile products of tobacco pervert the saliva, especially in individuals who are susceptible. Mercury and lead intoxications are injurious to the saliva.

Calcium plays an important part in the health of the individual. Calcium is essential for the production of certain ferments and glandular products. There is evidence that calcium activates the parotid gland. Calcium activates fibrinogen, the essential element in the blood favoring coagulation.

About twenty grains of earthy phosphates per day after the fifth year is about the average amount of calcium required. Dental failures so common during pregnancy are due to lack of earthy phosphates required by the mother and fetus. The phosphates, chlorids or lactates are used for therapeutic purposes. Foods supply the calcium needs of the tissues, and excesses are excreted in the feces and urine.

Indians and the chimpanzee ape keep their teeth to an advanced age. When they become civilized or are placed upon a diet of civilization, they develop dental caries. Incidentally, the ape when placed upon a human diet frequently develops appendicitis, a disease unknown to life in the wilds. Because of either the diet of captivity or its influence upon the saliva the calcium coefficient evidently becomes disturbed. We do know that the processing of grain deprives it to a large extent of the phosphates, etc.

Health has been described in volumes. For the sake of simplicity let it be understood that health is the sum total of all physiological and chemical body

reactions perpetually continued as normal functions. Primarily health is dependent upon coordination and harmony of all functions peculiar to respective organs or tissues, which are always interdependent and necessary for the upbuilding of the body. The normal chemical reaction is that of alkaline reserve.

Death rather than being a mystery is a chemical equation, in spite of any demonstrable lesion. It is a study of advanced chemical imbalance, an end-result.

Atlantic Hospital.

(To be continued)



John T. Hanks, D.D.S. Appointed Director of Division of Dentistry, Department of Hospitals, City of New York

On June 6, 1929, there was tendered to John T. Hanks, D.D.S., in New York a banquet in honor of an event of no small importance in the dental world.

There has been established in the City of New York a Division of Dentistry to take charge of the dental services in the twenty-six hospitals under city jurisdiction. Heretofore there have been services in different hospitals, but they have been more or less individual in direction and character. Now they are to be brought under unified direction and are to be enlarged until they are adequate to the great requirements—there is a daily

hospital census of about 16,000 cases—and the unified service is to be put on the highest plane practicable. It is to be extended to hospitals now without such service.

Dr. Hanks has been chosen as Director of this Division of Dentistry, and his selection meets with widespread and enthusiastic approval. His long service to the hospitals, his familiarity with the problems that will confront him, his vision, sanity, liberality and justice qualify him in an unusual degree to make this new undertaking an outstanding achievement in dentistry.

Allen T. Newman Appointed Dean of the College of Dentistry of New York University

The Council of New York University at a meeting on May 27, 1929, appointed Allen T. Newman as Dean of the College of Dentistry at New York University. Dean Newman, who will assume office on July 1st, is a graduate of the Liberal Arts College of the University of Nebraska in the class of 1912.

Subsequently he took work in the Graduate School of the University of Minnesota, received the degree of Master of Science in chemistry and taught for two years in the Medical

School there. He then decided to study dentistry. Upon completion of the course at the University of Minnesota he received the degree of Doctor of Dental Surgery from that institution.

Dr. Newman immediately was appointed a member of the dental faculty at the University of Minnesota and was soon promoted to the position of Superintendent of the Dental School, which position he held for two years. He has been Dean of the School of Dentistry at the University of

Denver for the last five years and resigned that position to accept the deanship at New York University.

During the War Dr. Newman entered the army and rose to the rank of captain of infantry, serving in the Philippines and in charge of R. O. T. C. and training camps in this country. He comes to New York University

highly recommended by leading dental educators of the country.

The position he will assume was made vacant by the death of Dean Holmes C. Jackson in the fall of 1927. During the interval Dean Marshall S. Brown, Dean of the Faculties of New York University, has performed the duties of acting dean.

Dental Clinic For the Police Force

Commissioner Whalen, head of the New York Police Department, has announced the appointment of Dr. Charles L. Singer as one of the two dentists who will conduct the newly established dental clinic at police headquarters.

Dr. Singer and his associates will have the job of examining the teeth of the 18,000 members of the force, all of whom will be obliged to take this examination. The salary will be \$3,000 a year.

Robin Adair, B.S., D.D.S., M.D.

1878-1929

The dental profession of America was shocked to learn of the untimely death of Dr. Robin Adair of Atlanta, Georgia, and his wife, who were killed in an automobile accident on Friday morning, April 26, 1929. They, with two of their children, were motoring to St. Simon's Island on the Georgia Coast to spend the week-end. While passing a heavy truck in the descent of a long hill, seventy-five miles out of Atlanta, one of the tires of his sedan blew out. The car turned turtle, caught Dr. and Mrs. Adair under its weight and crushed them to death instantly. The rear door of the car opened and the two children (Frances and Ben-

jamin) were thrown out, fortunately escaping with minor injuries.

Dr. Adair was born in Gainesville, Georgia, on February 27, 1878. He received the degree of B.S. from the University of Georgia in 1899 and the degree of D.D.S. from the Southern Dental College, of Atlanta, in 1902. He then entered the Atlanta College of Physicians and Surgeons (now Emory University School of Medicine) and received from that school the degree of M.D. in 1904.

Dr. Adair specialized in periodontia. His contributions to this field of dental literature have been widely published. He was a pioneer in the oral hygiene

movement. As a result of his deep interest, and at his suggestion, his alma mater was induced to create a chair designated as *Oral Hygiene and Pyorrhea Alveolaris*. The records show that this was the first chair thus designated and established in any dental school. Dr. Adair was elected professor of this branch of dentistry, which position he successfully filled until he could with confidence turn it over to his successor.

As an author Dr. Adair contributed to dentistry a most valuable book entitled *Practical Oral Hygiene, Prophylaxis and Pyorrhea Alveolaris*. He collected one of the most complete dental libraries in the South, a greater portion of which he donated some years ago to the Fulton County Medical Society.

Dr. Adair is accredited with being the first dentist in the South to advocate the dental nurse. He was so impressed with the knowledge of the growing need in this field of health service that in 1928 he organized the Atlanta School of Oral Hygiene. The first class, consisting of twenty-two young women, were preparing for their final examinations at the time of his unfortunate death.

He was Vice-President of the American Academy of Periodontology and Chairman of the Section on Mouth

Hygiene for the coming meeting of the American Dental Association in Washington, D. C. It is to be hoped that the splendid program which he had already prepared may be presented as he would have wished.

Dr. Adair was a consistent member of the Baptist Church for years. He was a member of the Psi Omega and Omicron Kappa Upsilon dental fraternities.

Outside of his profession, his life was devoted to his family. His happiest hours were in the seclusion of his home or out on a recreation trip, such as the one on which his unfortunate death and that of his wife occurred.

Mrs. Adair was formerly Miss Leonora Ragland, of Atlanta. She was a highly talented, lovable woman and a most devoted wife and mother.

Dr. Adair was the only son of Dr. R. B. Adair, who survives him, and who now in his 80th year is actively engaged in practice.

They are survived also by four children.

In the death of Dr. Robin Adair dentistry has been robbed of one of its most valuable representatives. His enthusiasm was an inspiration to those whom he drew around him. There is a place made vacant which cannot be filled.

American Dental Association Meeting

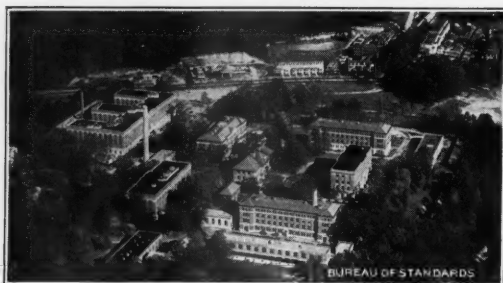
October 7-11, 1929

WASHINGTON—THE CENTER OF DENTISTRY

In no other city of this country are there to be found more complete facilities for the study and advancement of the dental profession than in Washington. We who practice dentistry feel exceedingly fortunate that we have within our limits all the advantages that are to be had in the science and practice of modern dentistry.

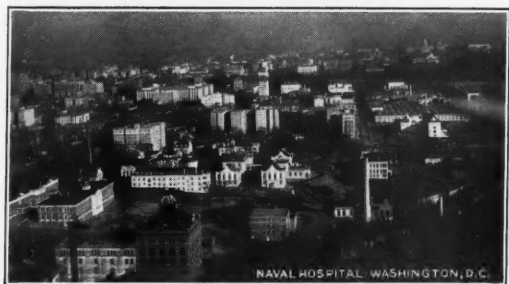
Recently it was found that out of more than thirty samples of alloy manufactured in this country not more than six met the standard.

In the National Museum there are more than 2000 skulls that are available for study by members of the dental profession. At Walter Reed Hospital (the Army medical center) and



The Bureau of Standards, one of the most interesting and practical departments of the Federal Government, in recent years has accomplished much for dentistry, and Dr. Taylor has been employed by the American Dental Association to cooperate with the Bureau. Here is to be found a standard for every material used in the dental profession. Tests are conducted for the expansion and contraction of alloys mixed with mercury, for the strength of golds and cements, the best investment and impression materials, and many other invaluable experiments.

at the Naval Hospital are two finely equipped clinics in which many experiments are carried on. The new Georgetown University Dental School, now under construction, when completed will have three hundred dental chairs with units, laboratories, and special prosthetic, operative and bacteriological laboratories. In this institution modern dentistry will be taught. The Army Medical Museum has a complete library of all medical and dental books and magazines and numerous specimens showing pathological conditions, while in the Library of Congress there



are more than 1500 volumes on dentistry, occupying 57 shelves. There are nearly 900 entries for works on dentistry in the Library catalogue.

Hence Washington provides extraordinary advantages for the study of

dentistry and for the dental profession. Members of the American Dental Association at the coming annual meeting, October 7-11, 1929, will have splendid opportunity to avail themselves of these rare privileges.



CITY OF NEW YORK—DEPARTMENT OF HEALTH
DENTAL EXAMINATION RECORD—SCHOOL CHILD

25-1649-27-11

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The following dental societies have adopted this resolution:

1. WHEREAS, It has been found, in many instances, that dentists have given certificates of completion to school children who have had partial work and in some cases no work done at all, and

2. WHEREAS, The issuing of such a certificate is a serious injustice to the child, the profession and to the community at large; and

3. WHEREAS, At previous dental gatherings, resolutions have been adopted to wit:

"RESOLVED, That in the aim to attain prevention of systemic and dental disease: (a) No defect is too slight to receive definite attention. (b) The temporary teeth should receive as much care as the permanent ones in order to promote the proper development of the jaws and head, and to maintain function. (c) Particular care and attention should be given to the developmental pits and fissures, whether occurring in primary or secondary teeth, OR WHETHER DECAY IS, OR IS NOT PRESENT!

"RESOLVED, That the American Dental Association declares for the principles and practices of children's dentistry, and maintains that the most effective dentistry that can be done for any individual is the service rendered between the second and fourteenth year of age."

Therefore be it

RESOLVED, That in no circumstance should a certificate of completion be given the child or the parent unless the dental service has been actually completed.

FIRST DISTRICT DENTAL SOCIETY
KINGS COUNTY DENTAL SOCIETY
EASTERN COUNTY DENTAL SOCIETY
QUEENS DENTAL SOCIETY

SECOND DISTRICT DENTAL SOCIETY
NORTH DISTRICT DENTAL SOCIETY
HARLEM DENTAL SOCIETY

Signature of Dentist doing work _____

THIS CARD IS TO BE RETURNED
AFTER ALL WORK IS COMPLETED

Address _____

The above chart will be used in making an examination of the children of the City of New York and they will be requested to present it to their dentists.

DIGESTS

GROWTH CHANGES OF THE TEETH AND ARCHES

By SAMUEL J. LEWIS, D.D.S.,
and IRA A. LEHMAN, D.D.S.

Variation is commonly found in the occlusion of the deciduous teeth, and the authors have not discovered a case where there was 100% perfection. The occlusion is affected by changes in growth and by factors that influence growth.

If the habit of thumb-sucking is not broken, the malocclusion it produces remains, but if the habit is stopped before the fifth year, then the malocclusion has a tendency to correct itself. The premature loss of deciduous teeth does not necessarily mean a closing of the space. It may remain the same or even grow larger.

The greatest increase in the size of the deciduous arches comes after the age of six, and the greatest increase is in the superior cuspid region. Wide spacing is favorable for good alignment, but there seems to be no positive relationship. Measurement of the teeth offers no solution for the diagnosis of developing malocclusion.—*The Dental Cosmos*, May, 1929.

CHOICE OF ANESTHESIA

By S. WALLMAN, B.A., D.D.S.

The author claims that general anesthesia, of which nitrous oxid is the

safest, should be used only when local anesthesia is contraindicated. It is especially indicated for small children, neurasthenics (big children), large infected areas, multiple extractions, and patients with trismus.

When using local anesthesia, conduction anesthesia is to be preferred to infiltration, because it is more lasting, is deeper, safer, and more convenient for multiple extractions.

The use of escharotics in order to make an injection painless is not necessary. The use of a 27-gauge needle to the depth of $\frac{1}{8}$ " and the depositing of a few drops of the solution is a painless procedure. This is followed by the insertion of the larger-gauge needle.—*The Dental Outlook*, May, 1929.

DENTAL DECAY

By HAROLD F. HAWKINS, D.D.S.

The author supports Miller's theory and claims that decay of the enamel is caused by the acid fermentation of carbohydrate foods, which removes the intercementing substance from between the enamel rods.

The cereal grains are probably the only carbohydrate that can accomplish this, because it is only in this class of starches that gluten is found. It is the gluten that holds the fermenting starch in contact with the teeth. This acid fermentation may be neutralized by (1) the presence of alkaline salts in the

saliva and (2) the calcium content of the saliva.

The control of decay may be accomplished by removing the plaques by the use of raw fruits and by careful tooth-brushing. The alkalinity of the saliva may be maintained by a mixed diet rich in fruits, vegetables, milk and nuts; the elimination of all foci of infection and the maintenance of a low cereal diet. The calcium content of the saliva may be increased by a generous intake of milk, cheese and leafy vegetables, and the assimilation is assisted by sun baths or a diet containing Vitamin D.—*The Journal of the American Dental Association*, May, 1929.

STOMATOLOGY: A PROBLEM IN EDUCATION

By A. LeROY JOHNSON, D.M.D., Sc.D.

Up to the present time medicine has neglected the oral cavity and dentistry has been engaged chiefly in the mechanics of restorations. The study of oral tissues as a part of the human organism is necessary for public service and the advance of knowledge.

Dentistry is rendering an important service, and the restorative work is indispensable to physical and social welfare. The dental schools are training dental technicians, but this service is of limited scope. The skill required and the time involved are so great that the highest type of dental service is beyond the reach of the majority of people of moderate means.

There has been practically no progress in the prevention of dental disease, and the trouble is that dental education is faced by the difficulty of trying to train technicians and develop scientists

at the same time. Only the exceptional man can be proficient in this dual rôle. Few surgeons are scientists. They are mechanical, and the dental student is of the surgeon type.

The majority of students go to dental school in order to learn how to perform dental operations. The dental schools encourage this attitude, and the state boards demand it. The fundamental sciences are considered "theoretical." This supposed incompatibility of the scientific and the practical is most harmful, for such is not the case.

The student is not wholly to blame. The medical teachers in dental schools are generally the younger and more inexperienced of the faculty and assume a condescending attitude. They look upon the work as a beginner's job. The whole system is wrong.

It is claimed that graduate work and research will meet the situation, but the average dental graduate is not qualified to do graduate work in the modern university. He is not intellectually mature enough and has not had the proper foundation. During his dental course he has been spoon-fed and considered on a lower intellectual level. He has not been trained to think for himself.

Consequently a way must be found of training men so that they may become teachers and investigators of oral conditions. The medical student is in need of an interpretive course in dentistry. This has been started at the Yale University School of Medicine, where a group of scientists has been organized for the study of oral disease as a problem of general pathology.—*Journal of the American Medical Association*, May 4, 1929.

Foreign Dental Literature

Edited by JOHN JACOB POSNER, LL.B., D.D.S., New York

THE RESECTION OF THE MOVABLE SOFT TISSUE RIDGE

By PROF. DR. WOLFGANG PRAEGER,
Tubingen, Germany

The author describes his method of trimming the soft tissues overlying the alveolar ridge. The purpose is to make a firm base for the denture. The ease with which the operation may be performed and the great improvement in the stability of the denture recommend this procedure where indicated.

Local anesthesia is used. There is very little bleeding. In the customary technic two incisions are made parallel to each other, but with their planes converging to form a V. The width between the two incisions is determined by the amount of tissue to be removed.

The author favors a single incision directly upon the ridge and down to the underlying bone. He then separates both ends from the bone beneath with a periosteal elevator. A strip is cut from each edge of the raised soft tissue to eliminate the excess, and the new ends are brought together and sutured. The soft movable tissue is now firm and definitely fixed in place, and a satisfactory denture may now be constructed.—*Correspondenz Blatt für Zahnärzte*, March, 1929.

THE HISTOLOGICAL CONTROL OF ROOT-CANAL TREATMENT

By B. GOTTLIEB, A. M. SCHWARZ, and
G. STEIN

In root-canal work we must dis-

tinguish between two forms of control in order to obtain an opinion of the value of such treatment. The one is clinical, intended principally for the practitioner, which puts him in a position to recognize whether certain requirements in the filling of the canal have been satisfied. By means of the radiograph he can determine whether the root filling goes to the end. He will hope to determine also whether the granuloma has arisen, is increasing in size, or has disappeared. Perhaps he will receive a definite explanation through the bacteriological examination of the contents of the canals. Above all, however, he will use as the deciding factor the continuous peaceful condition and normal functioning of the treated tooth.

The scientific control of a method of treating root canals has an entirely different lesson to teach. This second method of control is for the purpose of deciding whether a method is able to follow the demands of a definite principle. This brings the treatment of root canals to the biological control, where the microscope tells the true story of what is happening at the root end.

Alongside the technical question of root-canal treatment, root-canal cleaning, disinfection of the dentin and the root filling, the great problem is how we can prove the bacteriological value of the treatment. The thing desired is a condition in which all harm from the retention of the tooth ceases, although the pulp has been removed and the canal properly filled. For this to take place, it is essential that the bacteria at

the root apex must not become active, and that the filling material is the cause of no irritation.

The report of absolute sterility following the bacteriological examination of a root end is valuable evidence. The examination of such research material without contamination is extremely difficult, and the result of the culture not always reliable.

Another almost unavoidable source of failure in bacteriological research is due to the use of powerful drugs in the treatment of the root canal. The x-rays do not tell us whether or not the root-filling material is irritating or concerning the behavior of the tissue about the root end. [The x-ray is of value to show new bone-building. In no case, however, can the x-ray be taken as a reliable scientific method of proof.]

In the biological control of root treatment the chief point is the examination of periapical tissue. After a successful root-canal treatment it can be readily appreciated how difficult it would be to get the patient to submit to an operation in order to secure some of the periapical tissue so as to learn what has really occurred, as revealed by the microscope.

[The reaction in the periapical tissues is due to the bacterial content of the root canal and to the irritation of the filling material used in the root canal.] When we, therefore, transplant such an apex to another tissue environment, injuries will be the same as were caused in its original position. The following method is based on this principle, whereby it is known in advance that the teeth and roots are to be taken from a certain patient for the test.

With these selected patients the roots

to be extracted are first treated while still in the mouth. Some of these teeth are then extracted at once, some at a later day, great care being exercised that all this is done in a sterile manner under strict asepsis. To insure sterility, an actual cautery wire is run around the free margin of the gum in the pockets, which will reliably sterilize the pocket. The crown of the tooth and the surrounding tissues are painted with iodine, the tooth carefully extracted, and the apex clipped off. If a bacteriological examination is desired, the root apex is shaken up in a normal saline solution and sand, and this fluid is then cultured in various media.

The apex is implanted in the connective tissues of an experimental animal. Those chosen are dogs, guinea-pigs and rats. For the experiments here-in described rats were used.

The root ends were implanted in the leg of a rat near the exposed femur. After three to six months the animal was killed and sections made of the implant and the surrounding tissues. Every gradation was found from nothing at all to a well-defined abscess. When a gangrenous root was implanted, an abscess developed around the mouth of the root canal. With other implants infiltration was found sometimes along the wall of the canal. In the various roots examined it could be seen that a variation in the periapical infiltration depended upon the root-canal filling, whether it was short of the apex or filled the apex completely. In the latter case it was noticed that there was much less infiltration. In some of the roots the canals had first been filled with Howe's silver solution, and it can be stated that this treatment helped a

great deal toward a favorable result. The silver reached accessory canals which could not be reached through mechanical means. The best results of the experiment were found in a root in which the canal had been filled with metallic silver powder. In this instance there was a normal encapsulation of the apex, and not a single cell infiltrate was to be seen. This same success was seen in one of the accessory canals. We do not as yet say that in its present form this method of filling canals is practical. We wish to say only that this method gave the best results from a biological viewpoint. The most important point we wish to make is that this is the best method of controlling the effects of root-canal work. The fact that all grades of reaction were observed in the connective tissue of the host shows that we actually have a biological control of the implanted root. The human root end, when free from infective germs and chemically irritating substances, is capable of healing in a rat's tissue without reaction. Any abscess or infiltration shows the biological value of the implanted root.

The authors therefore conclude that they have a method which permits them to find out in a definite biological manner the value of any type of root-canal treatment. — *Deutsche Zahnärztliche Wochenschrift*, Berlin, Feb., 1929.

DISEASES OF THE ANTRUM OF HIGHMORE

By DR. BERND KUHN, of the Surgical University Clinic of Charity in Berlin

Vesalius, the great anatomist, described the antrum in the year 1546. Highmore studied the antrum many

years later, and it was named after him. He refers to a case of antrum involvement due to the extraction of a tooth.

Ordinarily the antrum extends from the first bicuspid to the second molar. In exceptional cases it may reach the canine as well as the third molar. There are often separate compartments within the antrum due to partitions. At times there is only a little bone separating the apices of the teeth and the floor of the antrum, and occasionally a very heavy layer of bone lies between them.

The antrum has its most important relation with the nose, with which it is in direct communication. In life there is just a slit separating the nose and the antrum, placed rather high, which brings it just below the roof of the antrum.

The anatomical position and nature of the antrum make it possible to understand why every affection of the nose may communicate with the antrum. Often a rhinitis in the nose may be sufficient to involve the antrum. Mostly the communication is due to infection.

Among the infectious diseases the one most likely to affect the antrum is influenza, which is responsible for 70% of these cases. Other causes are scarlet fever, pneumonia and diphtheria. Scarlet fever is particularly vicious in its effect on the antrum and its tendency to bone destruction. It is still a question in these conditions as to whether the nose is the primary or secondary seat. In influenza and diphtheria primary infection through the antrum has been shown. A case of erysipelas in the nose was cleared up by treating the antrum alone.

Empyema or pus in the antrum is often associated with influenza bacilli

and pneumococci. Many see in the pneumococcus the most frequent cause of pus in the antrum, and it is found also in the adjoining sinuses. In addition to these germs, there are also found staphylococcus, bacillus fusiformis and spirochete.

Secondary infection of the antrum may arise from an infected frontal sinus. In such cases the antrum serves merely as a reservoir for the pus from above.

The dental causes of antrum conditions have long been overrated. Even at the present time a definite dispute exists, some holding that the nose is the primary source and some the teeth.

The possibility of the infection of the antrum through the teeth is based on anatomical considerations. Normally only the bicuspid and the two molars are near the antrum. Naturally, the greater the number of teeth near the antrum the larger the possibilities for infection. In many cases the roots of the teeth protrude directly into the floor of the antrum, being separated therefrom only by the Schneiderian membrane, which lines the antrum. Under such conditions infection readily follows root-canal treatment. When a nerve broach is extended too far, it enters the antrum, carrying with it infectious material. More frequently the extraction of such a tooth opens into the antrum.

When with the removal of a tooth the antrum is opened, no great harm occurs if it is recognized and promptly handled. A loose piece of gauze is placed over the opening of the alveolus and held there by means of ligatures about the adjacent teeth. The wound usually heals without complication.

However, if the wound is neglected and allowed to remain open with no protection, bacteria from the mouth will enter and set up an infection. Sometimes a piece of cotton is stuffed into the socket. This is poor practice, for then the pressure upon it forces infection into the open antrum.

Another danger is pushing a broken root apex into the antrum while attempting its extraction. This occurs when the apices are quite close to the antrum floor and may happen even to a skilled operator. The root must be removed at once or empyema of the antrum will be the result. This is true whether the apex is from a non-vital tooth or from one which had a live pulp.

Often, following a chronic pericementitis or an acute condition, the antrum becomes infected. In chronic cases the bone at the tooth apex is destroyed and the material in the infected periapical area enters the antrum. The antrum may be involved also as a result of osteitis and osteomyelitis.

Cysts rarely invade the antrum. As they enlarge, they push aside the antrum walls but rarely communicate with the antrum itself. However, if a cyst has broken down, the pus may infect the antrum just as in a chronic pericementitis.

Growths may involve the antrum, such as odontoma and adamantinoma. The malignant growths readily invade the antrum.

Traumatic injury such as a blow or fall may cause sufficient injury to infect the antrum. Pieces of broach, the ends of burs and other foreign particles are frequently forced into the antrum during dental operations.

The various causes of antrum infec-

tion produce a catarrhal condition and inflammation of the antrum lining. Polypoid tissue forms and lines the antrum walls. At times there may be a cyst of the antrum lining, an interference with the lymphatics, and the antrum will fill with liquid.

The danger in empyema is the great tendency to chronicity. This is in great measure the result of the poor drainage from the antrum, because the natural opening in the nose is placed so high that the antrum must be nearly filled with fluid before it will drain through the nose.

Local pain due to antrum conditions may vary from tenderness in the region

of the antrum to one neuralgic in character. There may be obscure pain in the teeth, and pain on one side of the head or forehead is often present.

Transillumination is not a very reliable guide in diagnosis of the antrum. Often a cyst may be confused with an antrum infection. The x-ray, however, will quickly disclose the true condition by showing the cyst outline. In examining the mouth in cases of cyst in the antrum area the outer wall will be found to be thin and will yield under delicate pressure, sometimes with the crackling sound like parchment.—*Correspondenzblatt für Zahnärzte*, March, 1929.



DENTAL ECONOMICS

"A Great Discovery For the Dentist"

By M. A. MUNBLATT, D.D.S., Brooklyn, N. Y.

Being well aware of the fact that dentistry is facing many important problems today, I was very much interested when the dental salesman, who is the connoisseur on all things dental, made the remarkable statement to me that if I were anxious to solve my problems, I should by all means take a course in dental economics. According to his statement, the dentist is ignorantly running around in circles trying to make both ends meet, undergoing great hardships which could be eliminated if he were only clever enough to take advantage of this wonderful discovery.

"Do you know what is the matter with dentistry today?" said this walking philosopher. "Just go ahead and take a course and you will find out."

I am not going to describe any plan, because I have not attended any classes, nor do I think it worth while to do so. However, I have carefully read certain booklets, and I regret the nature of the discussion which is necessary because of the fact that a *plan* is becoming unduly a term synonymous with all that is good in dentistry.

It is quite unnecessary for me to tell you what great benefits will be derived by one who adopts a *plan*. That can be easily discovered and will be gladly offered without any charge if you

attend any of the sessions. It is my belief that the individuals offering this instruction are well able and well trained to present their case and paint the beautiful picture they intend. But I will mention a number of things it will not do in spite of the claims that may be made by the disciples of any economics course in dentistry.

A *plan* or any course in dental economics will not create good times when there is a general economic depression. Prosperity may be a slogan, but when business is bad and people in general are out of work, the dentist will feel the effect as well as the grocer and the butcher.

A *plan* will not collect bills from a patient who has always been a prompt payer in the past, has the means and is responsible, but is tied up at present with his speculations or investments and has no ready cash to meet his obligations because his regular business is at a standstill.

A *plan* will not create a pleasant and attractive personality in an individual who is by nature unable to make a proper impression on his business or professional associates.

If your practice consists of a class of patients who work until six p. m. and are unable to stay away from work except in very rare instances, no

plan of dental economics will get these patients to your office during the daytime. There are very few dentists who care to work after six, but when there are not enough patients during the day and bills have to be paid, a *plan* will not get any dentist to refuse to work for his patients after six.

When a dentist is building a practice and has very few patients, a *plan* will not bring the patients.

There are numerous other economic problems that a *plan* cannot solve, but I will grant that a discussion on dental economics is important and can do a great deal of good. We must not forget that there are two phases to this question, one the individual economic problem, which must be solved by the individual dentist according to his own requirements, and the other the general dental economic problem, which must be solved by the profession as a whole.

It cannot be denied that an efficient economic system in a dental office is very important. Records and time charts might increase one's income by giving important information, but they will not bring the patients, who come only as a result of a practice built on the reputation of honest and skillful workmanship. Furthermore, any one plan or system cannot be applied in every case.

My charge against a *plan* is that it is doing more harm than good. Although there are many busy dental practices that greatly lack an efficient business system in their office-management—in which case a *plan* may be adopted with some degree of success—there are at least ten that cannot apply any certain system for every one that can make use of that system in practice.

Dental economics is an important

subject, but it is just as wrong for a layman to discuss dental economics as it is for a dentist to discuss that question without a proper knowledge of economics, business efficiency and the elementary principles of accountancy. Every discussion of dental economics involves scientific and technical problems and can be discussed only by an individual who is actually practicing his profession and understands those problems.

Furthermore, although economics in dentistry is important, it cannot be made of prime importance, for to do so will defeat the purpose for which it is intended. The busy, remunerative and successful practice is built on efficient, honest and skillful workmanship. Business efficiency is only an aid toward increasing the financial returns of a successful practice, and not the means toward getting that practice. I am not the first to realize that there is an economic problem in dentistry, and that the public appreciation of modern scientific dentistry is lacking. But a *plan* will not solve that problem.

A *plan* is another form of dental quackery and is nothing but a money-making proposition. It is sponsored by a group of private individuals taking advantage of the situation that sadly exists in dentistry, and which is due to nothing but the rapid development of our profession. It is a brazen attempt of an outsider to invade our ranks without proper training and for no other reason than personal profit. It should be classed with all other systems and plans of dental financing for the patient and lay-education on the subject of dentistry by some private organization.

In concluding this article, let us emphasize the fact that we have economic and scientific problems in our profession that must be solved by a proper cooperation among dentist, physician and the general public.

Organized dentistry is well able to attack those problems and does not want the meddling of private money-making organizations.

62 Hanson Place



[VALUE OF IMPROVED HEALTH]

Anything that medicine can do to improve the health of the mother and child and raise the physical tone and vigor will tend to simplify our dental problems. The earlier this help is given, the better the chance to provide immunity from caries.

—DELABARRE.

CORRESPONDENCE

Editor, THE DENTAL DIGEST:

It has come to our attention that several dentists in Brooklyn have been victimized by accepting a check from a prospective patient which is subsequently returned by the bank marked, "No Account." In each instance the procedure is the same.

A man calls on the dentist, requests the doctor to submit an estimate for

indicate that quite a few dentists have been so victimized, and, while this Company has no responsibility nor liability in the matter, I thought it would be a good idea if there was some way in which the doctors could be notified and cautioned against this practice.

I am enclosing a photographic copy of one of the checks used by this impostor, who always uses the name of

FLATBUSH AVENUE
BROOKLYN.

No 7/4 NEW YORK May 4th 1924.

1-45 THE CORN EXCHANGE BANK B-22
FLATBUSH AVENUE BRANCH

Pay to the
Order of Michael Blake \$26⁵⁰/₁₀₀

Twenty Six ⁵⁰/₁₀₀

Dollars

N. Y. v. Queens Elec. L. & P. Co.
Per R. H. O. Adams
Cashier

Salts Light.

work to be done and, upon being informed of the amount, states, "I can't pay this amount all at once, but I will give you a deposit of \$25.00. I have a check here which is perfectly all right; I'll endorse the check, you keep \$25.00 and give me the change." The checks are usually in the amount of \$26.50 or \$28.50, so that the impostor receives \$1.50 or \$3.50 in change.

Information we have received from some of the dentists in question would

Michael Blake and signs the checks exactly as in the copy attached.

If there is any further information you would like to receive, please let me know.

Very truly yours,

(Signed) J. C. PERRY, Manager,
Special Service Bureau, New York
and Queens Electric Light and Power
Company.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce,
care of THE DENTAL DIGEST, 220 West 42d Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

I should greatly appreciate any advice you may offer on the care and sterilization of burs. I enjoy reading your questionnaire, and I hope that the column will greatly increase during the year.

M. T., Mass.

ANSWER.—Following the use of burs, place them in a small pan and cover with water to which has been added bicarbonate of soda, a half-teaspoonful to a pint of water. Then bring to a boil and allow to boil for a few minutes. Place a rather soft brush wheel on the lathe and hold each individual bur so that the bristles of the brush strike lengthwise of the blades on the bur and brush until all debris is removed. Do not use the brush crosswise, as this dulls the cutting edges. Many dentists do not approve of the use of wire brushes in cleaning burs, since this has a tendency to dull the cutting edges. Borax may be

substituted for the bicarbonate of soda if so desired, and there are non-rust solutions on the market that can be used if preferred.

Reboil the cleansed burs in a solution similar to the one mentioned above either in a pan or in your sterilizer, if you have a bur basket in the latter. Remove, dry carefully and place in storage container. Prior to use in operative procedure, place in a dish and cover with alcohol or camphophenol solution. Burs should always be examined under a magnifying glass and, if found dulled, should be discarded. Some dentists never use a bur the second time, as the sharper the bur the less annoyance to the patient in drilling.

Dear Miss Pierce:

In two weeks I shall enter the office as an assistant to my husband. I am just a beginner and shall appreciate all the help a beginner needs, so that I

may lighten his work and make for efficiency in the office.

R. B. B., Tenn.

ANSWER.—First, may I say that one cannot learn to be an efficient assistant in a few days, weeks or even months, and that in the space at our disposal in this department it would not be possible to do more than touch the high spots in the daily duties that compose the service to the patients and the dentist in a well-ordered office.

The first thing you will have to do will be to familiarize yourself with the requirements of the dentist in his operative technic. Each dentist has his own way of doing his work; some require a great deal of assistance at the chair, others prefer to have the assistant make things ready and then busy herself about other duties. The foremost quality needed is that of observation supplemented by concentration and the retention of what one has observed. Keep a pad and pencil in your uniform pocket, if necessary, to jog your memory. Paying strict attention to the work in hand will make it possible for you to anticipate any requirements of either the dentist or the patient, and in this way you will expedite the work and lighten the responsibilities of the dentist from the angle of the small details of service, which are really not a part of his operative procedure.

In your spare time read the dental publications and other dental literature that come into the office. You will absorb "dental atmosphere" and become familiar with the dental terms used, as well as with the various types of dental operations, so that you will soon know what the dentist is talking about when

he speaks of prophylactic treatment, restoration by means of removable bridgework, cleft palate operation, orthodontia, periodontia, prosthesis, etc., etc.

You can lighten the dentist's work very materially if you will learn how to mix amalgams, cements and synthetic porcelains properly, and if you will perfect yourself in simple laboratory duties such as the proper mixing of plaster and impression materials, pouring casts, trimming up models, investing inlays and casting, polishing crowns and bridges, preparing waxes, compounds and plaster for impressions, etc.

If the dentist does x-ray work, you can do all the developing and mounting of films. You can also take care of his books, records and charts and do his banking. You can care for all the telephone calls, receive and dismiss the patients, make the appointments and purchase the supplies. Your duties can be many and varied and can comprise every detail in the conduct of the office, except the actual dental operations. *Time* is the great factor in a dental office—it is all that the dentist has to sell, plus his scientific skill—and anything that an assistant can do that will eliminate a waste of time on the part of the operator is profit, and enables him to concentrate on *dental service*.

And now a word or two of friendly advice. As the wife of the dentist, it will require a great deal of tact and poise on your part to maintain a dignified business relationship with his patients. Some will probably impose on this relationship; others will think they can turn their dental visit into a social call; others may not treat you just as

you think the wife of the dentist should be treated, etc., but remember that when you are functioning as his assistant you are not in the office in the capacity of wife, and therefore, no matter what happens, treat it from a strictly business viewpoint.

As a last piece of advice, if you will join the dental assistants' association in your locality or state, you will learn much that will help you. There is nothing like personal contact with others who are doing the same kind of work. We all need advice or inspiration at times, and these can be had from the women who have the same experiences or the same problems to solve.

Dear Miss Pierce:

Please tell me of some quick, easy method to remove modeling compound from metal impression trays. I have used soap powder in boiling water, but it leaves dark streaks on the trays.

J. M.

ANSWER.—Coat the trays with liquid petrolatum or with vaseline, being careful to use it in moderation, and hold the trays over a Bunsen burner until very hot, when the compound can be removed with a cloth. A second application may be necessary. Then polish with a medium-soft brush wheel.

EDUCATIONAL AND EFFICIENCY
SOCIETY FOR DENTAL ASSISTANTS,
FIRST DISTRICT, NEW YORK, INC.

The Educational and Efficiency Society for Dental Assistants, First District, New York, Inc., brought to a close the activities of the past season

when clinics were presented at Rochester, N. Y., before the annual meeting of the Dental Society of the State of New York and before the Dental Assistants Association of the State of New York. First aid, secretarial assistance and economy suggestions were the subjects of the demonstrations, showing how the dental assistant may be of value in rendering first aid in any emergency that may arise in a dental office, collection letters, types of stationery, recall systems, bookkeeping systems, and many helpful suggestions that tend for economy and efficiency in dental office routine. The Society was also represented by delegates at the sessions of the Dental Assistants Association of the State of New York.

At the regular meeting of the Society at the Academy of Medicine on May 14, 1929, the annual reports of the officers and chairmen of committees were read. Election of officers for the coming year was in order, and the following were elected and installed: President, Ethel R. Meyerson; Vice-President, Mae E. Quinn; Corresponding Secretary, Emma L. Christoff; Registrar, Martha Keit; Directors, Juliette A. Southard, Robina A. McMurdo, Ann Maloney. The Recording Secretary and Treasurer remain in office until May, 1930.

During the last year speakers from many fields of activity have addressed the regular meetings of the Society, discussing various topics and bringing to the members much of value in dental knowledge and general knowledge. Classes in first aid, laboratory assistance and anatomy of the head have been given by competent instructors from the professions and have afforded

the members many advantages for furthering their education.

The Clinic Club has held regular meetings each month and has presented the various phases of dental assisting to the members and before dental societies. Demonstrations by means of table clinics were successfully given before the Kings County Dental Society, the Eastern Dental Society and the mid-winter meeting of the First District Dental Society. It is the purpose of the Clinic Club to present table clinics showing ways in which a trained, competent dental assistant can be of value to dentist and patient and to help the members in solving problems of office procedure within the scope of the assistant's duties. All members of the Educational and Efficiency Society for Dental Assistants, New York, are eligible for membership and are urged to join.

The library is open to all members of the Society and can be of particular interest during the summer months when the Society is not in session and no classes are being held. Its contents include articles on dental topics culled from the dental press, a pictorial history of dentistry, dental equipment and

instruments, and a book of helpful hints on methods of dental office procedure. Further information may be obtained from the Librarian, Janet Yates, c/o Dr. Eolis, Times Building, Times Square, New York, N. Y.

Dental assistants employed in ethical dental offices are welcome to the meetings and are urged to affiliate with the Society. It is the purpose of the Society to help raise the standard of education for the dental assistant and to teach her an appreciation of the ideals and aims of the dental profession in its service to the laity. It has no employment bureau and is not connected with commercial enterprises. The meetings are held regularly at the Academy of Medicine, 2 East 103rd Street, New York, N. Y., on the second Tuesday evening of each month, October to May, inclusive. The President may be addressed as follows: Ethel R. Meyerson, 27 West 86th Street, New York, N. Y. The date of the next meeting is October 15, 1929, when a prominent member of the dental profession will address the Society. A cordial invitation to attend is extended to the members of the dental profession and to their assistants.



PRACTICAL HINTS

THIS DEPARTMENT IS NOW BEING CONDUCTED FROM THE OFFICE OF THE DENTAL DIGEST. TO AVOID UNNECESSARY DELAYS, HINTS, QUESTIONS AND ANSWERS SHOULD BE ADDRESSED TO EDITOR PRACTICAL HINTS, THE DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

Editor, Practical Hints:

When, in your opinion, is the lancing of a baby's gum indicated? Are you in favor of this? If so, how would you proceed?

H. E. P.

ANSWER.—The lancing of a baby's gum is indicated when the teeth are upon the point of eruption and the baby is suffering from the effects of the inflammation, running a temperature with digestive disturbances. However, if the incision is made and the teeth do not erupt, the scar tissue will complicate the procedure.

A sharp lance is used and a clean incision is made through the gum and into contact with the cusp. A crucial incision is not necessary.

Editor, Practical Hints:

Is diagnosis by transillumination thoroughly reliable? Please give your opinion as to the relative merits of transillumination and the x-ray in dentistry.

J. H. T.

ANSWER.—Any man who depends on only one method of diagnosis is apt to have a large percentage of errors. Neither transillumination nor the x-ray,

when taken alone, is reliable. They should be used in conjunction with a careful consideration of the clinical symptoms and the past history.

With the x-ray there is no means of telling whether or not an area is infected, and often a tooth that shows no area at all is the focus of a very active infection. A great deal of harm has been done by proceeding on the evidence or lack of evidence furnished by the x-ray alone.

Editor, Practical Hints:

I have a case that is causing no small amount of trouble. The patient, a woman, is wearing a plate which fits perfectly. However, after the plate is worn for several hours it seems to be so tight that she is obliged to loosen it. The patient says it seems to be glued to the highest part of the palate. She does not complain of any numbness or burning sensation. The gums are not in the least inflamed. After a few minutes she is able to replace the denture for several hours.

P. R. L.

ANSWER.—A possible explanation for the difficulty may be the fact that the denture causes a slight irritation

and consequently congestion of the tissues. This would cause the tissues to swell from an increased flow of blood, and the denture would fit more tightly.

This irritation might be caused by the fit of the plate or might be due to a reaction by the patient to vulcanite.

Editor, Practical Hints:

I should greatly appreciate some advice concerning an upper left lateral. The patient, a girl, 14 years of age, has a synthetic filling in the side of the tooth which seems all right. I opened into the root canal and there was quite a flow of blood.

D. A. F.

ANSWER.—It is possible that you opened into the pulp canal just after the death of the pulp had taken place and before decomposition had occurred. There may have been considerable hyperemia, which accounts for the hemorrhage.

Editor, Practical Hints:

I should like to know the cause of excessive dryness of the mouth and lack of saliva following a mastoid operation performed three years ago. It has increased since an appendix operation a year ago. The patient is even awakened during the night with the teeth and lips sticking together.

J. O. B.

ANSWER.—The condition you describe is probably due to a nervous affection and should be referred to a physician for diagnosis and treatment.

Editor, Practical Hints:

Permit me to bring to your consideration a case that has been under my ob-

servation for three years, and which I believe you will agree is unique in the extreme. Now, after considering the case, it would give the various dentists and myself much satisfaction, and your trouble would be much appreciated, if you would furnish a diagnosis and suggest the indicated treatment.

In January, 1926, a middle-aged man, of good family history, went to his dentist to have extracted a second upper bicuspid (dead). It healed nicely. Four months after he began to experience pain in a localized area in the roof of the mouth near the palatal root of the first molar (next to where the bicuspid had been removed). This continued for a month, when the tooth was removed, the x-ray having revealed nothing of a pathological character. The man insisted on having it removed. The dentist was unable to remove the tooth, but at the request of the patient he broke off the crown and after much difficulty removed the roots.

Following this the gum was six weeks drawing over the cavity, during which time the face and jaws were exceedingly painful. There was no sloughing. The gum was firm. X-rays revealed nothing. The third molar had been removed years before. The superior maxillary sinus was not involved. At the end of about six weeks the gum closed over the cavity, and the acute symptoms disappeared. But since that time, for two and a half years neither the tooth nor the gum would allow any pressure, either on occlusion or with a toothbrush, without starting some pain, which seemed to be in the bone itself. This would last for two or three weeks and then subside. The gum looks normal,

and there has always been partial anesthesia of the gum. The pressure of the toothbrush on the gum, even a dentifrice, sometimes irritates it. There is no pyorrhea.

During the last two months the pain has been constant. The molar was left as an anchor for a bridge, as all the rest of the teeth are present except the third molars. No doubt the second molar was disturbed in the process of extracting the first molar.

E. C. M.

ANSWER.—We are publishing this case history in the hope that some of our readers may be able to be of assistance.

Editor, Practical Hints:

How do you take cultures for Vincent's infection? Also, what are the stain and cultures used for determining the bacteria in a deep pocket in the gum (pyorrhea)?

G. C. M.

ANSWER.—Cultures for Vincent's infection are taken by means of a swab in the same manner that a culture is

obtained when diphtheria is suspected. The growth of the cultures is difficult, since the bacillus is anærobic when grown artificially, though it probably is a facultative ærobo. It can be grown only on carefully prepared media and under ideal conditions.

Small colonies appear on Loeffler's blood-serum in four days. The growth decolorizes litmus milk. It grows quite well on agar. In every case a fetid odor is produced. The colonies die if left below 37° C. for a few hours.

The spirilla appear in the media in about four days also. The bacilli stain violet and the spirilla pink, by the Gram method. If the media have a pH value of 4 when the culture is started, the spirilla appear when the medium has attained a pH value of 7 or 8.

For determining the various kinds of bacteria found in a pus pocket in pyorrhea it would be necessary to use various media and various stains, since the variety would be large. Only a well equipped bacteriological laboratory would be able to carry this through with any degree of thoroughness or accuracy.





BOOKS RECEIVED

A BOOK MAY BE AS GREAT A THING AS A BATTLE—DISABLY

The Business Side of Dentistry, by Edwin N. Kent, D.M.D., Lecturer on Conduct of Practice, Harvard University Dental School.

This book is a clear, straightforward treatise on the subject, viewing it from the ethical standpoint and in refreshing contrast to the sordid commercialism put forth by certain lay teachers of business-getting, money-making courses.

Dentistry is first discussed as a vocation and then as a business, followed by the psychology of professional success. Office efficiency and personal efficiency are taken up, together with record-keeping and fees.

The book is more general than specific, which makes it all the more valuable, since definite rules and practices are not universally applicable, certain so-called authorities notwithstanding.

The advice given is based on sound principles, and the book should be in the hands of all men starting in to practice. Not a few older practitioners might read it to advantage.

175 pp., with 12 illustrations. St. Louis: The C. V. Mosby Company, 1929.—A. M. J.

The Basic Principles of General and Oral Pathology, by Lester Richard Cahn, D.D.S., Department of Oral Pathology, College of Dental and Oral Surgery, Columbia University.

This book was written as a supplementary text to lectures on the subject to dental students and hygienists. As such it definitely accomplishes its aim. It covers the more common pathological lesions in a simple, straightforward manner without going into confusing details.

The general practitioner also will find it of value in gaining a knowledge of present-day pathology in a condensed form. The illustrations are numerous and very clear.

148 pp., with 89 illustrations and index. Brooklyn, N. Y.: Dental Items of Interest Publishing Company, Inc., 1929.—A. M. J.

—
Transactions of the Seventh International Dental Congress, Philadelphia, Pa., August, 1926.

These two volumes, containing over two thousand pages, present the committee reports, addresses and papers read before this Congress. The papers have been published in *The Journal of the American Dental Association*, but in book form they are more readily accessible and will make an acceptable addition to any library.

Information in regard to copies may be obtained from L. Dickison, 1757 West Harrison St., Chicago, Ill.—A. M. J.

EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

Experience—the name men give to their mistakes.

The modern girl who makes her own clothes certainly has plenty of leisure.

(First Cannibal)—The Chief has hay fever.
(Second Cannibal)—Serves him right. I told him not to eat that grass widow.

SIGN ON HOT DOG STAND

Eat our Frankfurters. Made from contented canines.

IT PAYS TO BE CAREFUL

A Scotchman refused to attend a spiritualistic seance for fear the message might be collect.

A gunman killed a dentist in a Western city the other day, and was heard to say before popping him off that "it wouldn't hurt him a bit."

NO HALITOSIS FOR HIM

A certain dieting chap we know is so particular that he insists on having his onions boiled in listerine.

"Won't you give a shilling to the Lord?" said a Salvation Army girl to an Aberdeen man.

"How auld are ye, lassie?" he inquired.

"Nineteen, sir."

"Ah, weel, I'm past seventy. I'll be seein' Him afore you, so I'll hand it to Him mysel'."

America has no great cathedrals, but you should see some of our modern bathrooms! Well, it's as good to be clean as to be pious.

WHY BE SELFISH?

Pure water is the noblest gift that man to man can bring;

But who am I that I should want the best of everything?

Let princes guzzle at the pump, let dukes with ponds make free;

Whisky, or wine, or even beer, is good enough for me!

(Bike Rider)—When I bought a motor-bike from you a few weeks ago you said if anything broke within six months you would supply a new part free.

(Salesman)—Certainly, sir. What may I have the pleasure of providing for you?

(Bike Rider)—I want four front teeth.

"I say, waiter, the flowers on the table are artificial, aren't they?"

"Yes, sir. That's the worst of running a vegetarian restaurant—when we use real flowers, the customers eat them."

NAMING THE FLOWERS

When to the flowers so beautiful

The Father gave a name,

Back came a little blue-eyed one

(All timidly it came);

And standing at its Father's feet

And gazing in His face,

It said with low and timid voice,

And yet with gentle grace,

"Dear God, the name thou gavest me,

Alas, I have forgot."

Kindly the Father looked him down

And said, "Forget-me-not."

The universal language is getting on. The following conversation was overheard recently in a hotel lobby:

"What is Esperanto?"

"Why, don't you know? It's the universal language."

"Really! Who speaks it?"

"Oh, nobody."

An Indian snake-charmer now plays to his pet serpents on the bagpipes instead of the usual reed pipes. Well, we don't care; we never did like snakes.

COME ON INVENTORS

Most any golfer, poor or rich,

Would never count the cost,

Could he but buy a golf ball which

Would bark when it was lost.

"We are becoming a speed-crazy people," said a visitor from abroad. It seems to be quite true. Even when going no place in particular we crash along as if it were the last day of the world. If our grandfathers missed an outgoing stage coach in the old days they were willing to wait a week for the next one. Today if we miss one section of a revolving door the air is filled with language not fit to print.

(Bildad)—I met that impossible Dingbat today.

(Wifey)—Yes, and I suppose you argued with him until you were black in the face.

(Bildad)—No, just around one eye.

FUTURE EVENTS

THE PACIFIC COAST DENTAL CONFERENCE, consisting of British Columbia, Washington, Oregon, Idaho, Utah, Nevada, Southern California and California State Associations, will hold its second triennial meeting in San Francisco, Cal., July 8-12, 1929. All members of the American Dental Association are cordially invited.

Further information may be had from

F. T. WEST, *Secretary*,
2180 Washington St., San Francisco, Cal.

EXAMINATION FOR APPOINTMENT TO DENTAL CORPS OF U. S. NAVY

A competitive examination for appointment to the Dental Corps of the United States Navy will begin July 8, 1929, at the U. S. Naval Medical School, Washington, D. C. Candidates must be citizens of the United States, between 21 and 32 years of age at the time of appointment, and graduates of recognized dental schools. The examination will be both theoretical and clinical, and the usual duration is about seven days. A circular containing full information relative to the Dental Corps and the prescribed form of application may be obtained from the Bureau of Medicine and Surgery, Navy Department, Washington, D. C. No allowance is made for the expense of applicants appearing for examination.

C. E. RIGGS,
Surgeon-General, U. S. Navy.

THE MONTANA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting at Helena, Mont., July 8-12, 1929.

For further information, address

T. P. REGAN, *Sec'y*,
Helena, Mont.

THE NORTH DAKOTA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting at the Gardner Hotel, Fargo, N. D., July 9-12, 1929. All applications must be in the hands of the Secretary by June 30th.

GILBERT MOSKAU, *Sec'y*,
Northwestern National Bank Bldg.
Grand Forks, N. D.

THE AMERICAN SOCIETY OF ORTHODONTISTS will hold its annual meeting in Estes Park, Colorado, July 15-19, 1929. All ethical dentists are invited. A registration fee will be charged to non-members.

Hotels are Stanley (headquarters), The Cragg, Lewiston and Elkhorn Lodge. For hotel information, write to Dr. Fred W. Beesley, Republic Bldg., Denver, Colo. Regarding transportation, write to Dr. Kirman E. Taylor, Mack Bldg., Denver, Colo.

ALBERT H. KETCHAM, D.D.S., *President*,
1232 Republic Bldg., Denver, Colo.

CHARLES R. BAKER, D.D.S., *Secretary*,
708 Church St., Evanston, Ill.

THE ARIZONA BOARD OF DENTAL ENGINEERS will hold its next meeting at Flagstaff, Arizona, beginning July 29, 1929.

For further information and application blanks, address

EUGENE MCGUIRE, *Secretary*,
420 Security Building,
Phoenix, Arizona.

THE BALTIMORE COLLEGE OF DENTAL SURGERY, Dental School of University of Maryland, Baltimore, Md., will dedicate its new Dental Building on Saturday, October 5, 1929. This day will be known as Alumni Day; Friday, the 4th, will be Class Reunion Day; Sunday, the 6th, will be Recreation Day; Monday, the 7th, the meeting will go to Washington, D. C., to attend the American Dental Association Convention.

In the near future a chairman will be appointed from each class to get his classmates together for a grand reunion.

HORACE M. DAVIS, *Chairman*,
Dedication Committee,
Medical Arts, Bldg.,
Baltimore, Md.

WALTER E. GREEN, *Chairman*,
Class Reunion Committee,
2958 West North Ave.,
Baltimore, Md.

THE SOUTHWESTERN DENTAL SOCIETY will hold its annual meeting in El Paso,

Texas. Time—October, just prior to the meeting of the A. D. A. in Washington, D. C.

We are desirous of putting on this program by members of the A. D. A. who live in the West and can arrange to stop off en route to the Washington meeting.

All members of the A. D. A. are most cordially invited to bring along their papers, clinical material and dental ideas and help us make a big meeting.

Along with your clinical material bring your golf clubs and nerves toned for a real Mexican bull fight and other delights to be found just across the silvery Rio Grande.

Come and be our guests.

Address all communications to

L. A. NEIL, *Chairman, Program Committee*,
809 First National Bank Bldg.,
El Paso, Texas.

THE AMERICAN DENTAL HYGIENISTS' ASSOCIATION will hold its sixth annual convention at Hotel Powhatan, Washington, D. C., October 7-11, 1929.

Make your reservations early.

AGNES G. MORRIS, *General Secretary*,
886 Main St., Bridgeport, Conn.

THE FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its Fifth Annual December Meeting for Better Dentistry at the Hotel Pennsylvania, New York, December 10-14, 1929.

The officers of the Society have made arrangements to continue the meetings on the same plan as heretofore, and expect that the profession will again support them in making this meeting a success.



